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THE NATURAL METHOD OF TEACHING THE TECHNICAL LANGUAGE OF ANATOMY

BY

ROBERT PEMBERTON

THE NATURAL METHOD

OF

TEACHING THE TECHNICAL LANGUAGE

OF

ANATOMY,

FOR THE

Nursery and Infant Schools.

By ROBERT PEMBERTON,

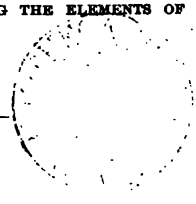
(*Member of the Royal Society of Literature,*)

AUTHOR OF

"THE ATTRIBUTES OF THE SOUL FROM THE CRADLE,"

AND

"THE NATURAL METHOD OF TEACHING THE ELEMENTS OF GRAMMAR."



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INTRODUCTION.

THE philosophic spirit of discovery is fulfilling her designed mission in every field of research, both for the past and for the future; whether in the subtilty of analysis or in the sublime development of geological structure; whether in the attributes of matter or in the attributes of the soul.

The economy of time and labour is the creation's immutable law, and the scientific, the engineer, and the workman, are now following that law in all their splendid works of art in the vast field of materiality, whether for majesty of structure or rapidity of movement; whether in the most gigantic works of machinery or in the minutest horology; and it is these mighty deeds which demonstrate that man is travelling onward towards perfection. Yet, the teachers of the human mind lag in their old beaten track of task-work and self-instruction. There is a discord between the workers of matter and the workers of mind; the former hold converse with each other through the caverns of the deep with the velocity of the electric flash; while the latter toil and tug against wind and tide, and their speed rarely exceeds two, three, or four miles per hour at the most. The spirit of reform, of

progress, of philanthropy, of philosophy, now declares that they must *move on* in the mental kingdom, and do justice to the mind, by teaching *knowledge and science direct* to the infant gods of the creation, and thereby accomplish the final triumph over all mystery. To educate the child in science, and to elevate its mind, is the highest worship we can offer to God ; to neglect the *perfect* education of the innocent child, is an absolute sacrilege towards the Creator. To dishonour the gem of the creation, is the blight of bigotry and the scourge of Mammon.

The present epoch is now opening to the world truth's last and final triumph over error, *the education of the people by law ;* and, what is more, the philosophic spirit of research is directing the torch of science to the divine and natural art of teaching the marvellously endowed infant. That the education of the mind should be still without the pale of the law, demonstrates that the Christian world has not yet comprehended its duty.

The following pages contain the second specimen of the fundamental and true rudiments for teaching children real science, deduced entirely from that invaluable theory, "the Attributes of the Soul from the Cradle." The Latin and Greek scholar has lamented a thousand and a thousand times how soon he forgets the use of the dead languages, after so much time and money have been lavished on their supposed perfect acquirement. And the linguist,

in modern languages, finds himself in the same predicament; he cannot speak or make use of them, but in the most decrepit way possible, after all his waste of time in his book studies. The faculty, whether relating to the science of anatomy or to the science of medicine, makes the same complaint; thus corroborating the fundamental error in the art and science of teaching in all the schools and colleges of Europe. The following is the complaint of the faculty of Paris:—"There is no recollection more quickly effaced on leaving the schools, than that of anatomical detail. *Books* cannot prevent the most able pupil, after a few years passed out of the dissecting room, from forgetting, in some measure, the disposition of the tissues; on which account, many operations that *might have saved the lives of patients*, had the surgeons had present in their minds the respective situation of the parts amidst which the instruments should be applied, are *indefinitely potsponed*, and become at length impracticable."

The French and Italians are modelling, in the most ingenious way, the beautiful structure and mechanism of the human body, which is no doubt of great value and a great addition to drawings and diagrams. There can be no question that models present to the eye a more perfect idea of the projection of the contours, the depth of the organs, and the super-position and correct disposition of the tissues of the body, than the shading of

drawings could possibly present; yet, a remarkable fact is now discovered, that the *eye* or the sight can never teach a language. The sight is swift in the extreme, and as rapidly conveys to the mind the outward form of every object it meets with; but 'tis speech alone that engraves every language on the memory. Every object in nature and art, from an *atom* to the whole creation, possesses a name, and every name requires a thousand repetitions on the ear to become the freehold of the mind. Anatomy contains seventeen hundred subjects; it therefore possesses a technical language of its own, and is of the same nature as a foreign language, by reason that its nomenclature is chiefly composed of Greek and Latin. And here I beg to remark, that all science is swamped by excessive letter-press, so that its nomenclature is never acquired. Now the nomenclature represents the substantive, the foundation of all science; it can only be acquired by oral instruction, and, according to the new discovery developed by the author in the "*Attributes of the Soul,*" can only be acquired in infancy, at which period alone, science and languages become imprinted on the memory for life. The scientific mind of research follows nature, which actually develops the mind of the Creator, whose works, whether material or intellectual, body or soul, are founded and established in science; and the economy of time and labour constitutes the very acme of perfection in the whole of the beautiful

creation. It is there that man fails in the divine science of educating and teaching.

The trainers and teachers of the human race follow with extreme tenacity the system they are bred to, and are fortified and surrounded by the solid walls of established customs, which cannot be broken through but by the spirit of research, developing their errors by argument followed up by experiment.

There is nothing deficient in the endowments of the human mind any more than there is in matter, whether in the sun, moon, stars, or any part of the divine creation; man is a perfectible being, and it will be proved, when the scientific mind turns its attention to him experimentally in the art of teaching. The most remarkable feature in the history of education up to this day is, that no science in any language is handed down through the natural parent, not even the grammar of the mother tongue, notwithstanding that the parents may have studied grammar for twenty years!!! *There* is one of the most splendid discoveries in philosophy, which proves that the *book system* is like a *mule;* it has its use and value, but is not *hereditary*, and consequently is a non-fructifier. There is the cause why no science is handed down through the natural parent; therefore, the book system is the abortion of the soul's perfection. The truth is, that the whole system is unnatural, and is learned by rules instead of by practice. The child

is not a *carte blanche* to the system of books, but it is a perfect *carte blanche* to its own order in oral instruction, for any languages or any science. The marvellous effect of first impressions upon the innocent child, and its sudden growth in science, languages, and civilized manners, will, in a very few years, be developed, understood, and taken advantage of by the energetic minds of progress. The whole creation, whether intellectual or material, is under the laws of attraction and mechanical movement; the earth without the sun would be lost, the child without the teacher would be in the same predicament. Nothing could compensate for the sun, nothing can compensate for the *oral* and *living* teacher. The child, at its birth, takes to the language of any nurse, whether savage or civilized (behold the miracle of first impressions!); there we see its attributes, it takes to its own order, and, therefore, no books or any inventions of man can possibly supply the value and use of the living and oral teacher. The book is of no comparative value in teaching, but as a prompter to aid the memory of the instructor, until the children have acquired a perfect knowledge of the languages, sciences, and arts, which will occupy the first ten or twelve years of their existence. The whole art of teaching is under mechanical laws, and, consequently, its power can be increased *ad libitum*; therefore, the express object of printing this science on cards, is to multiply the number of

readers or teachers, so that the science may be rapidly gone through, and often repeated.

In the course of time and experiment, the art of teaching will be found to be entirely dramatic—absorbing the attention, and peripatetic—in pleasurable and scientific movements; illustrating and embodying all objects, whether in the domestic laboratory or in the scientific laboratory; whether in the works of mechanism in the workshop, or in the culture of the ground, from which, in fact, all the good things proceed, thus forming the true union of nature and art, science and labour. The science of anatomy was begun nearly three thousand years ago, yet the attributes of the *whole* of its parts can hardly be said to be discovered up to this day; then can the scientific mind wonder that the attributes of the soul should not have been discovered until the present epoch?

It is exceedingly difficult to arouse any people, nation, or tribe, from the apathy and enthraldom of the laws of *custom* and *habit*, though never so *false*, *absurd*, or *unnatural*. The British Empire in the East contains a population of seventy or eighty millions of subjects, and yet their rulers know nothing of the language of that immense multitude which they have to govern!!! 'Tis a degradation to humanity. Logic and analogy are here utterly discarded. The governor, judges, officers, and officials of all grades, must have interpreters, through whom alone they receive all the

complaints and sorrows of that immense empire! Heathen interpreters! So that heathen interpreters surpass in knowledge all the linguists taught in the colleges of the Christian world!!! Interpreters of foreign languages are to be met with in all the principal taverns on the continent, but are not to be found in our learned colleges! Now the art of speaking foreign languages, whether of the East, the West, the North, or the South, can be accomplished with the same ease and pleasure as those acquired by the infant in every country in the world.

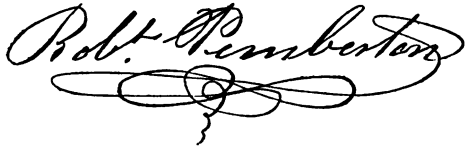
In a future work, the author intends to describe the detail of his new organic and practical method of teaching in the Natural University for languages, sciences, arts, and labour, in unison with the harmony of the passions of the soul; and he foresees that the science of education, in the course of a quarter of a century, will be racing neck and neck with the steam power.

REMARKS ON THE PRONUNCIATION.

Every technical word in this nomenclature of anatomy has been accented according to the best medical and classical authorities, so that the reader may never be left in the least doubt or hesitation whatever as regards the right pronunciation; and the vocabulary explains the meaning and derivation of the technical words, thus rendering it perfectly

easy for any one who can read English to teach correctly the technical language of anatomy.

The ordinary accent (′) follows and indicates the accented syllable in each word as *el′bow*. When a word has *two* accented syllables, the double accent (″) distinguishes the principal one. The long vowels marked thus :—ā, ē, ī, ō, ū, ȳ, are to be pronounced like those in fāte, mē, pīne, nō, cūbe, skȳ. The short vowels marked thus :—ă, ĕ, ĭ, ŏ, ŭ, ў, are to be pronounced like those in făt, lĕt, tĭn, nŏt, tŭb, mўth.



The Hermitage,
Hythe, Kent.

June 21*st*, 1852.

OSTEŎL'OGY.

1

OSTEŎL'OGY.

According to the latest anal'ysis, *Bone* is composed of about one-third of animal substance, which is almost completely reducible to gĕl'atine by boiling, and of two-thirds ($\frac{2}{3}$) of earthy and alkal'ine salts.

2

The special constit'uents of *Bone* are:—

Cartilage,
Blood-vessels,
Phosphate of lime,
Carbonate of lime,
Fluate of lime,
Phosphate of magnesia,
Soda, and
Chlo'ride of sodium.

3

The proportions of the constituent parts of *Bone* are:—

	Parts. Frac.
Cartilage . . .	32 . 17
Blood-vessels . .	1 . 13
Phosphate of lime	51 . 04
Fluate of lime .	2 . 00
Phosphate of magnesia . .	1 . 16
Soda, chlo'ride of sodium .	1 . 20
	100 . 00

4

Bones

are divisible into

three classes:—

Long bones,

Flat bones, and

Irregular bones.

5

The *Long Bones* are:—

The clăv′icle,
The hū′merus,
The rā′dius and ŭl′nă,
The fē′mur,
The tĭb′ia and fi′bula,
The metacar′pal,
The metatar′sal,
The phalăn′ges, and
The ribs.

6

The *Flat Bones* are:—

The occĭp′ital,
The parĭ′etal,
The fron′tal,
The nā′sal,
The lăchrymal,[1]
The vō′mer,
The stĕr′num,
The scăp′ulă, and
The ŏs′sa inominā′tă.

[1] Pronounce lak′rymal.

7

The *Irregular Bones* are:

The tem′poral,
The sphē′noid,
The ĕth′moid,
The superior măx′illary,
The inferior măx′illary,
The palate,
The inferior tur′binated,
The hȳ′oid,
The vĕr′tebræ,
The săc′rum, the coc′cyx,[2]
The car′pal, the tar′sal, and the sĕs′amoid.

[2] Pronounce cok′six.

8

The Ossĭc′ulă Audĭ′tûs[3] are the only bones completely ossified at birth.

The vĕr′tebræ are not completed until the five-and-twentieth year.

[3] This û to be pronounced as the u in cube.

9

The entire ŏs′sĕoŭs frame-work of the body constitutes the *Skeleton*, which, in the adult man or woman, consists of two hundred and forty-six bones.

246 bones.

10

There are—

8 bones in the head,
14 bones in the face,
32 bones in the teeth,
26 bones in the vĕr′tebral column, including the săc′rum and coc′cўx,
26 bones in the ōs hў-oï′dēs, ster′num and ribs,
64 bones in the upper extremities,
62 bones in the lower extremities, and
8 sĕs′amoid bones.

11

The *Skeleton* is divisible into five different parts:

1° Thevĕr′tebral column, or central axis,
2° The head ănd face, or superior development of the central axis,
3° The hў′oid arch,
4° The thōrăc′ic[4] arch, and upper extremities,
5° The pelvic arch, and lower extremities.

[4] Pronounce thorass′ic.

12

The *Vĕr′tebral Column* is composed of true and false vĕr′tebræ.

There are twenty-four true vĕr′tebræ, and nine false vĕr′tebræ.

13

The 24 true *Vĕr'tebræ* consist of:—

7 cer'vĭcal vĕr'tebræ,
12 dorsal vĕr'tebræ, and
5 lumbar vĕr'tebræ.

The nine false *Vĕr'tebræ* consist of:—

5 săc'rum vĕr'tebræ, and
4 cŏc'cўs[5] vĕr'tebræ.

[5] Pronounce cok'six.

14

There are three peculiar *Vĕr'tebræ* in the cer'vĭcal region:—

The first, or atlas,
The second, or axis, and
The seventh, or vĕr'tebra prŏm'ĭnens.

15

The peculiar *Vĕr'tebræ* in the dorsal region are:—

The first,
The ninth,
The tenth,
The eleventh, and
The twelfth.

16

The *Skull*, or superior expansion of the vĕr'tebral column, is divisible into two parts:
The crā'nium and
the face.

17

The *Crā′nium* is composed of eight separate bones :—

The occĭp′ĭtal bone,
Two parĭ′etal bones,
The fron′tal bone,
Two tem′poral bones,
The sphē′noid bone, and
The eth′moid bone.

18

The fourteen bones of the *Face* are :—

Two nā′sal bones,
Two superior măx′ĭllary bones,
Two mā′lar bones,
Two palate bones,
Two inferior tur′binated bones,
The vō′mer bone, and
The inferior măx′ĭllary bone.

19

The regions of the *Skull* are :—

The superior region, or vertex of the skull,
The lateral region,
The inferior region, or base, and
The anterior region ; the face.

20

The *Orbits* are two quadrilăt′eral hollow cones, situated in the upper part of the face, and intended for the reception of the eyeballs, with their muscles, vessels, nerves, and the lăchrўmal[6] glands.

---

[6] Pronounce lak′rymal.

21

The *Nā′sal Fos′sæ*[7] are two irregular cavities, situated in the middle of the face, and extending from before backwards.

[7] æ pronounced as the e in me.

22

Man is provided with two successions of *Teeth:* the first are the teeth of childhood; they are called tem′porary, decĭd′uous or milk teeth; the second teeth continue until old age, and are named permanent teeth.

23

The temporary *Teeth* are twenty in number: eight incīs′ors, four canīne′ or cus′pid teeth, and eight mōlars.

The temporary mōlars have four tubercles, and are succeeded by the permanent bīcŭs′pidēs, which have only two tubercles.

24

The periods of appearance of the *Teeth* are extremely irregular. The average for the temporary teeth is thus:—

Seventh month, 2 middle incī′sors; 9th month, 2 lateral incī′sors; 12th month, first mōlars; 18th month, canīne′ teeth; 24th month, 2 last mōlars. The teeth of the lower jaw precede those of the upper jaw by a short interval.

25

The periods of appearance for the permanent *Teeth* are: — 6th ½ year, first mōlars; 7th year, 2 middle incī'sors; 8th year, 2 lateral incī'sors; 9th year, first bĭcŭs'pĭdēs; 10th year, second bĭcŭs'pĭdēs; 11th to 12th year, canīne teeth; 12th to 13th year, second mōlars; 17th to 21st year, last mōlars.

26

The permanent *Teeth* are thirty-two in number, sixteen in each jaw. They are divisible into four classes:—

Eight incī'sors; 4 in each jaw, 2 central and 2 lateral.

Four canīne teeth; 2 above and 2 below.

Eight bĭcus'pĭd teeth; 4 above and 4 below.

Twelve mōlars; 6 above and 6 below.

27

The *Ōs Hȳoi'dēs* forms the second arch developed from the crā'nium, and gives support to the tongue, and attachment to numerous muscles in the neck. The bones of the thō'rax are the ster'num and ribs.

28

The bones of the *Upper Extremity* are:—

The clăv'icle,

The hū'merus,

The ŭl'na and rā'dius,

The bones of the carpus,

the metacar'pus, and

the phalan'gēs.

29

The *Ster′num* is divisible in the adult′ into three pieces :—

The superior piece, or manū′brĭum,

The middle piece or body, and

The inferior piece (ensĭform, or Xĭ′phoid[s] cartilage) is the smallest of the three.

[s] Pronounce zif′oid.

30

There are twelve *Ribs* at each side :—

The first seven are connected with the ster′num, and are named sternal ribs or true ribs. The remaining five are the aster′nal ribs or false ribs. The two last aster′nal ribs, shorter than the rest, and free at their extremities, are the floating ribs.

31

The bones

of the

Car′pus

are eight in number ;

they are arranged

in two rows ;

four in each row.

32

CAR′PUS BONES.

First row.

Commencing from the rā′dial side are the ōs scaphoi′dēs, ōs semilunā′rĕ, ōs cunēĭfor′me, ōs pĭsĭfor′me.

Second row—same order.

Os trapē′zium, ōs trapezoi′dēs, ōs magnum, ōs uncĭfor′me.

33

The *Trapē'zium*
is called also
ōs multăn'gulum mā'jus.

The *Trapezoi'dēs*
is called also
ōs multan'gulum mīnus.

The *ōs magnum*
is called also
ōs capitā'tum.

34

The bones of the *Metacar'pus* are five in number. The base of the metacar'pal bone of the index finger is the largest of the four.

The *Phalăn'ges* are the bones of the fingers; they are fourteen in number—three to each finger, and two to the thumb.

35

The bones of the *Pĕl'vis* are the two ŏs'sa innominā'tă, the săc'rum, and the coc'cўx.

The bones of the Lower Extremity are:—

The fēmur,
The pătĕl'la,
The tĭb'ia,
The fĭ'bula,
The tar'sus,
The metatar'sus, and
The phalăn'gēs.

36

The *Ōs Innominā'tum*, or ōs cŏx'æ, is an irregular flat bone, consisting in the young subject of three parts.

It is usually described in the adult as divisible into three portions:—

The I'lium,
The ĭs'chĭum,[9] and
The pū'bes.

[9] Pronounce is'kium.

37

The bones of the *Tar'sus* are seven in number:
The astrăg'alus,
The calcā'neus,
The scă'phoid,
The internal cunē'iform,
The middle cunē'iform,
The external cunē'iform,
and
The cū'boid bone.
The astrăg'alus is called, also, ōs tā'lī.
The calcā'neous is called, also, ōs căl'cis.

38

There are five *Metatar'sal* bones. The first is shorter and larger than the rest. There are two phalan'ges in the great toe, three in the other toes as in the hand.

The *Ribs* that demand especial consideration are:—The tenth, the eleventh, & the twelfth. The first rib is the shortest.

39

The first seven *Costal Cartilages* articulate with the sternum. The three next articulate with the lower border of the cartilage, immediately preceding. The two last lie free between the abdominal muscles. All the cartilages of the false ribs terminate by pointed extremities.

40

The *Costal Cartilages* serve to prolong the ribs forwards to the anterior part of the chest, and contribute mainly to the elasticity of the thōrax.

41

The *Tym'panum* contains three small bones, the ŏssic'ulă audĭ'tûs[1] :—

The măl'lĕus,

The ĭn'cus, and

The stā'pēs.

[1] Pronounce the û as in cube.

42

The *Long Bones* consist of a shaft and two extremities. The shaft is cylĭn'drical or prĭs'moid in form; dense, hard in texture; and hollowed in the interior into a mĕdul'lary canal.

43

A *Vĕr'tebra* consists of a body, two lăm'ĭnæ, a spinous process, two transverse processes, four articular processes; also two pĕd'icles, the forā'men and intervĕr'tebral notches.

44

The *Atlas* is composed of arches and processes.

Belonging to the axis, (vĕr'tebra dentā'tă), is the odŏn'toid process.

Belonging to the lumbar vĕr'tebræ are the transverse processes (cŏs'tiform processes).

45

SAC'RUM.

The anterior surface,
Posterior surface,
Săc'ral cor'nua,
Lateral border,
Superior border,
Inferior extremity,
(ā'pex of săc'rum.)

The occĭp'ĭtal bone is trapezoid' in figure, and divisible into two surfaces, four borders, and four angles.

46

OCCIP'ITAL BONE.

The superior curved line, external occĭp'ital protuberance, spine, inferior curved line, forā'men magnum, cŏn'dўl, posterior cŏn'dўloid forā'men, transverse process, băs'ilar process.

47

OCCIP'ITAL BONE.

INTERNAL SURFACE.

Internal occĭp'ital protuberance,
Jugular eminence,
Superior borders,
Inferior borders,
Angles, superior, inferior and lateral.

48

FRONTAL BONE.

The forā'men cæ'cum and dĭ'gĭtal fŏs'sæ.

The TEMPORAL BONE is divisible into a squā'mous portion, mas'toid portion, and pē'trous portion.

Situated in the tem'poral bone are the meā'tus auditō'rius exter'nus, and meā'tus auditō'rius inter'nus.

49

FRONTAL BONE.

The Frontal Eminence, supercĭl'iary ridges, supra-or'bital ridges, external and internal angular process, supra-or'bĭtal notch, nasal tuberosity, tem'poral ridge, tem'poral fossa, orbito-nā'sal portion, or'bĭtal plates, eth-moid'al fissure, nā'sal-spine.

50

PARI'ETAL BONE.

The tem'poral ridge, parĭ'etal eminence, plā'num semicirculā're, parĭ'etal forā'men, (often absent) anterior inferior angle, posterior inferior angle.

51

SQUA'MOUS PORTION OF THE TEM'PORAL BONE.

The zȳgō'ma, tubercle, eminen'tia articulā'ris, inferior root, superior root, middle root of the zȳgō'ma.

52

MAS'TOID, PORTION OF THE TEM'PORAL BONE.

The măs'toid forā'men, măs'toid process, meā'tus and auditō'rius externus, processus auditō'rius, dĭgăs'tric fossa, occĭp'ĭtal groove, fossa sigmoi'dea.

53

PE′TROUS PORTION OF THE TEMPORAL BONE

Is divisible into three surfaces:—

An anterior surface, a posterior surface, and a băs′ĭlar surface.

And three borders:—

A superior border, an anterior border, and a posterior border.

54

PE′TROUS PORTION OF THE TEM′PORAL BONE.

Hiā′tus Fallō′pĭi, entrance of the meā′tus auditō′rius inter′nus, aquæduc′tus coch′lēæ,[2] tractus spīrā′lis foraminulēn′tus, tūbulus centrālismodī′ōlī, vaginal process, proces′sus cochlearifor′mis, stȳ′lo-măs′toid forā′men, carŏt′id forā′men, glē′noid fossa, glē′noid fissure, fissū′ra glase′rĭi.

[2] Pronounce cok′leæ.

55

SPHE′NOID BONE.

Ethmoid′al spine, olivary process, middle clī′noid process, optic forā′mina, anterior clinoid processes, sella tur′cĭca[3] (ephĭp′pium,) posterior clī′noid process, (clivus Blumenbăchĭ′ī.)

[3] Pronounce tur′sica.

56

SPHE′NOID BONE.

Sphēnoid′al fissure, forā′men rotŭn′dum, forā′men ovā′le, crista sphēnoidā′lis, rostrum sphēnoidā′le, sphēnoid′al spongy bones, ptĕr′ygo-pălatine canal, ptĕr′ygoid or vidian canals, processus vaginā′lēs, *spheno-occipital bone.*

57

SPHE'NOID BONE.

Lesser wings (processes of Ingrassias),
Greater wings,
Ptĕr'ygoid ridge,
Spĭ'nous processes,
Forāmen spĭnō'sum,
Ptĕr'ygoid processes,
Hăm'ulur processes,
Scă'phoid fossa,
Ptĕr'ygoid fossa,
Angular notch (palatine.)

58

ETH'MOID BONE.

Perpendicular lamĕl'la,
Crĭs'ta găl'lī, ā'lar processes, crĭ'brĭform lamĕl'la, lateral masses, (labyrĭn'thi), superior meā'tus of the nose, superior turbinated bone, (cŏn'chă[4] superior), middle turbinated bone, (cŏn'chă[4] mē'dia), ōs plā'num, infundib'ulum.

[4] Pronounce konka.

59

The superior măx'illary bone is divisible into a body and four processes. Belonging to the body of the superior măx'illary are: the an'trum maxillā're, external or facial surface, internal or nasal surface, posterior or zȳgomăt'ic surface, superior or or'bĭtal surface.

60

The four processes of the superior măx'illary bone are the nā'sal process, mā'lar process, alvē'olar process, and palate process.

VO'MER BONE.

Superior border,
Inferior border,
Posterior border,
Anterior border.

61

SUPERIOR MAX′ILLARY BONE.

Incĭ′sive or mўr′tiform fŏs′sa, crĭs′ta turbinā′lis inferior, sul′cus lachrymā′lis, forā′mĭna alveolā′ria posterior, crista turbinā′lis superior, nā′sal spine, crista nāsā′lis, canine′ fossa, compressor nā′sī, levā′tor ăn′gulī ō′ris, infra orbital forā′men.

62

LACH′RYMAL BONE,

(hăm′ulus lachrymā′lis.)

MA′LAR BONE.

Frontal process,

Or′bital process,

Măx′illary process, and

Zўgomăt′ic process.

63

PALATE BONE.

Horizontal plate,
Posterior palatine forā′mina,
Palate spine,
Perpendicular plate,
Posterior palatine canal,
Sphē′no-palatine forā′men,
Or′bital portion,
Sphēnoid′al portion,
Ptĕr′ygoid process, or tuberosity.

64

INFERIOR TURBINATED BONE.

Con′cha[5] inferior,
Convex surface,
Concave surface,
Superior border,
Processus lachrymā′lis,[6]
Processus maxillā′ris,
Processus ēthmoidā′lis,
Inferior border.

[5] Pronounce kon′ka.
[6] Pronounce lakryma′lis.

65

INFERIOR MAX'ILLARY BONE.

Rā'mus, crista mentā'lis, sým'phýsĭs, incĭ'sive fŏs'sa, mental forā'men, mȳ'lo-hȳoide'an ridge, sigmoid ridge, cŏr'onoid process, cŏn'dyl, inferior dental.

66

The bones of the *Cra'nium* and *Face* are connected with each other by means of sū'tures (sutū'ræ).

There are four principal varieties of sū'tures:—

The serrā'ted sū'ture,
The squā'mous sū'ture,
The harmō'nia sū'ture, and
The [7]schindýle'sis sū'ture.
Os'sa triquē'tra, or
Os'sa Wormiā'na.

[7] Pronounce ch as k.

67

SU'TURES.

Cŏr'onal sū'ture, să'gĭttal sū'ture, lamb'doid sū'ture, squā'mous sū'ture.

The additamen'tum sutū'ræ squāmō'sæ, and additamen'tum sutū'ræ lambdoidā'lis constitute together the mas'toid sū'ture.

The transverse sū'ture is an irregular sū'ture across the upper part of the face.

68

The lateral region of the *Skull* is divisible into three portions:—

The temporal portion, or temporal fos'sa, mas'toid portion, and zygomat'ic portion; belonging to the zȳgomat'ic portion is the sphē'no-măx'illary fissure, ptĕr'ygo-măx'illary fissure, and sphē'no-măx'illary fos'sa.

69

The base of the *Skull* presents an internal or cĕr'ĕbral surface, and an external or bās'ilar surface.

The cĕr'ĕbral surface is divisible into three parts:—

Anterior, middle, and posterior fos'sa of the base of the cra'nium.

70

BASE OF THE SKULL, CER'EBRAL SURFACE, ANTERIOR FOS'SA.

Crĭs'ta găl'lī, forā'men cæ'cum, crī'brĭform plate and forā'mina, procĕs'sus olivā'ris, optic forā'mină, anterior and middle clī'noid processes, and vertical grooves.

71

BASE OF SKULL, CER'EBRAL SURFACE, MIDDLE FOS'SA.

Sella tŭr'cĭcă,[8] cărŏt'id groove, sphēnoid'al fissure, forā'men lă'cerum ante'rius, forā'men rotun'dum, forā'men ovā'le, forā'men spĭnō'sum, forā'men lă'cerum bā'sī crā'nĭī.

[8] Pronounce turssica.

72

BASE OF THE SKULL, CER'EBRAL REGION, POSTERIOR FOS'SA.

Forā'men măg'num (clivus Blumenbăchĭī), internal au'dĭtory forā'men, aquædŭc'tus vestĭb'ulī, aquædŭc'tus coch'lēæ,[9] forā'men lă'cerum postē'rius.

[9] Prononnce cokleæ.

73

BASE OF SKULL, EXTERNAL OR BAS'ILAR SURFACE.

Anterior palatine or incī'sive forā'men, posterior palatine forā'mină, transverse ridges, palate spine, posterior nā'rēs, ptĕr'ygo palatine canals, forā'men ovā'le, forā'men spinō'sum.

74

There are nine openings communicating with the *Orbit* :—The optic opening, sphēnoid'al fissure, sphē'no-măx'illary fissure, in'frăor'bĭtal canal, tem'poro-mālar forā'mĭnă, anterior ēthmoid'al forā'mĭnă, posterior ēthmoid'al forā'minā, opening of the nā'sal duct, supra-orbital notch.

75

Belonging to each nasal fŏssă :—

The Superior meā'tus,
Middle meā'tus, and
Inferior meā'tus.

TEETH.

Each tooth is divisible into a
Crown,
Neck, and
Root *or* fang.

76

There are four kinds of *Teeth* :—

Incī'sor teeth (*cutting teeth*).

Cănine' teeth (*cuspidā'tī*).

Bĭcŭs'pid teeth (*bĭcŭspidā'ti, small mōlars*).

Mōlar teeth (*multĭcuspĭdā'tī, grinders*).

77

A *Tooth* is composed of three distinct structures:—

Ivory or tooth-bone, enamel, and a cortical substance or cementum (substan'tiă ŏstoid'eă).

The anterior permanent mōlar is the most remarkable tooth in man.

78

STRUCTURE OF TEETH.

Cav'itas pul'pæ, a soft cel'lulo-vas'cular organ, the pulp, bac'cated fibres, Purkingean cells, and tū'buli.

PROCESS OF DENTITION.

Three natural stages:

Follĭc'ular,
Săc'cular, and
Eruptive.

79

STERNUM.

Incisū'ra semilunā'ris,
Incisū'ra claviculā'ris.

SCAP'ULA.

Subscăp'ulă fŏs'sa, ăx'illary border, head, neck, glē'noid cavity, spine, acrō'mion, cŏr'acoid process.

80

HU'MERUS.

Head, neck, greater tuberosity, lesser tuberosity, bĭcĭp'ital groove, anterior and posterior bĭcĭp'ital ridges, eminen'tia capitā'ta, troch'lea,[1] external and internal con'dyl.

[1] Pronounce troklea.

81

ULʹNA.

Greater sigʹmoid notch,
Lesser sigʹmoid notch,
Olecrāʹnon process,
Cŏrʹonoid process,
Capĭtʹulum ulʹnæ,
Stӯʹloid process,
Anterior border,
Posterior border,
External or rāʹdial border.

82

ŌS INNOMINAʹTUM.

The crest,
The auriĉʹular portion,
Anterior *superior* spinous process,
Anterior *inferior* spinous process,
Posterior *superior* spinous process,
Posterior *inferior* spinous process.

83

ŌS INNOMINAʹTUM.

Rāʹmus, great săcʹro-ischiăt'ic[2] notch, lesser sacro-ischiăt'ic notch, (horizontal rāʹmus of Albĭʹnus), spine or tubercle, pectĭneʹal line (lĭʹnea ĭʹlio-pectĭneʹa), sўmʹphysis, arch of pūʹbēs, acetāʹbulum, (căvʹitas cotyloideʹa), obturāʹtor or thўʹroid forāʹmen.

[2] Pronounce iskiatic.

84

PELVIS.

The brim, the inlet, the outlet, axis of the inlet, axis of the outlet.

The diameters of the inlet of the pelvis are three in number:—

1. The anʹtero-posterior, săcʹro pubic, or conjugate,
2. The transverse, and
3. Oblĭqueʹ.

85

The diameters of the outlet of the pelvis are—

The antero-posterior, and transverse.

The pelvis is divisible into a *true* and *false* pelvis.

The fē'mur is the longest bone in the skeleton.

86

FE'MUR.

The superior extremity, head, neck, trochăn'ter[3] major, lī'nea quadrā'ti, trochantĕr'ic or dĭ'gĭtal fŏs'sa, anterior intertrochantĕr'ic line, posterior intertrochantĕr'ic line, trochăn'ter minor, lī'nea ăs'pera, external cŏn'dўl, internal cŏn'dўl.

[3] Pronounce trokanter.

87

TIB'IA.

Internal, external, and posterior surface of the shaft:—

Poplĭt'eal line,
Internal mallē'olus,
Upper extremity,
Tuberosities,
Spinous process,
Tubercle,
Inferior extremity.

88

FI'BULA.

Superior extremity,
Lower extremity,
External mallē'olus,
Anterior border,
Posterior border,
Shaft, external surface,
Internal surface,
Interŏs'seous ridge,
Posterior surface,
Nutritious forā'men,
Internal border,
External border.

89

ASTRAG'ALUS.

(*Os ta'lī.*)

Superior surface,
Inferior surface,
Sulcus tā'lI,
Internal border,
External border,
Anterior extremity,
Posterior extremity.

90

CALCA'NEUS.

Superior surface,
Sulcus calcā'neI,
Inferior surface,
External surface,
Internal surface,
Sustentăc'ulum tā'li,
Anterior extremity,
Posterior extremity,
Posterior tuberosity.

91

SCĂ'PHOID BONE.

The anterior surface has three facets; the posterior surface is concave; superior border, inferior border, external extremity, internal extremity.

92

The internal cunē'iform has a convex surface, concave surface, long border, short articular border, small extremity, and large extremity.

The internal cunē'iform is the largest of the three cunē'iform bones.

93

The middle cunē'iform is the smallest of the three cunē'iform bones. It has an anterior surface, posterior surface, lateral surfaces, a long articular facet, and a partial articular facet.

94

CU'BOID BONE.

The *non-articular* surfaces are the superior surface, and inferior surface, tuberosity, a deep groove, and external surface.

The *articular* surfaces are the posterior, anterior, and internal surface.

95

Besides the patĕl'la, there are four pairs of ses'amoid bones: two upon the metacarpo-phalăn'geal articulation of each thumb, and two upon the corresponding joint in the foot.

96

There is often a *Ses'amoid Bone* upon the metacar'po-phalăn'geal joint of the little finger, and upon the corresponding joint in the foot; one also in the tendon of the perōne'us longus muscle, where it glides through the groove in the cū'boid bone.

97

Sometimes there is a *Ses'amoid Bone* in the tendons as they wind around the inner and outer mallē'olus; sometimes one in the psō'as and ilī'acus, where they glide over the body of the ōs pū'bis; sometimes there is a ses'amoid bone in the external head of the gastrocnē'mius.

SŸNDESMŎL'OGY.

1

The study of the Ligaments is termed SŸNDESMŎL'OGY.

Ligament is the name given to those bands of various breadth and thickness, which retain the articular ends of bones in contact in the construction of joints.

2

The connection between any two bones constitutes a joint or articulation. The forms of articulation met with in the human frame may be considered under three classes:—

Sŷnarthrō'sis,
Am'phĭ-arthrō'sis,
and
Dĭarthrō'sis.

3

Sŷnarthrō'sis expresses the fixed form of joint in which the bones are immovably connected with each other. There are four kinds of sŷnarthrō'sis:—

Sutū'ra,
Harmō'nia,
Schĭndўle'sis,[1] and
Gomphō'sis.

[1] Pronounce sch as sk.

4

There is but *one* kind of Am'phĭ-arthrō'sis.

There are *three* kinds of Dĭarthrō'sis:—

Arthrō'dia,
Gĭn'glymus,[2] and
Enarthrō'sis.

Am'phĭ-arthrō'sis is a joint intermediate in aptitude for motion between the immovable sŷnarthrō'sis and the movable dĭarthrō'sis.

[2] Pronounce g hard.

5

EXAMPLES
OF AM′PHĬ-ARTHRŌ′SIS.

The union between the bodies of the vĕr′tebræ, of the săc′rum with the cŏc′cўx, of the pieces of the sternum, săc′ro-ĭ′lĭac and pū′bic sўm′physes, and the necks of the ribs with the transverse processes.

6

EXAMPLES
OF ARTHRŌ′DIA.

Articulations of the clăv′ĭcle, of the ribs, articular processes of the vĕr′tebræ, axis with the atlas, rā′dius with the ulna, fĭ′bula with the tĭb′ia, car′pal and metacar′pal bones, tar′sal and metatar′sal bones.

7

EXAMPLES
OF [3]GĬN′GLŸMUS.

Elbow joint, wrist, metacar′po - phalăn′geal and phalăn′geal joints.

Knee joint, ankle, metatar′so - phalăn′geal joints.

The lower jaw may be admitted into this category.

[3] Pronounce g hard.

8

The four ligaments of the [4]*Gĭn′glўmoid* joint are:—
The anterior,
The posterior,
The internal lateral, and
The external lateral.
The lateral ligaments are thick and strong the anterior and posterior ligaments are thin and loose.

[4] Pronounce g hard.

9

The range of motion of the *Enarthrō'sis* is the most extensive of all the moveable joints; it is called the ball and socket joint, and is enclosed in a bag of ligamentous membrane, the căp'sular ligament. There are *two* examples of it in the body: the *hip* and the *shoulder*.

10

The motions permitted in *Joints* are four:—
Gliding,
Angular movement,
Circumduction, and
Rotation.

The structures entering into the composition of a joint are:—
Bone,
Cartilage,
Fĭ'brous tissue,
Ad'ĭpose tissue, and
Sÿnō'vial membrane.

11

Cartilage may be classed into three kinds:—
True cartilage,
Retĭc'ular cartilage, and
Fĭ'brous cartilage.

Fĭ'brous tissue presents itself under three forms:
White fĭ'brous tissue,
Yellow fĭ'brous tissue, and
Red fĭ'brous tissue.

12

Tendon is the collection of parallel fascĭc'ulĭ of fĭ'brous tissue, by means of which muscles are attached to bones; it is called, also, aponeurō'sis when spread out and assuming a mem'branous form.

Yellow fĭ'brous tissue is called, also, elastic tissue; red fĭ'brous tissue, contrăc'tĭle tissue.

13

The *Joints* may be arranged into three divisions :—

The joints of the trunk,

The joints of the upper extremity, and

The joints of the lower extremity.

The articulations or joints of the trunk are divisible into ten groups.

14

JOINTS OF THE TRUNK.

1. Articulation of the vĕr′tebral column.
2. Of the atlas with the occĭp′ĭtal bone.
3. Of the axis with the occĭp′ĭtal bone.
4. Of the atlas with the axis.
5. Of the lower jaw.
6. Of the ribs with the vĕr′tebræ.
7. Of the ribs with the ster′num and each other.
8. Of the ster′num.
9. Of the vĕr′tebral column with the pĕl′vis.
10. Of the pĕl′vis.

15

The ligaments of the *bodies* of the *Vĕr′tebræ* are :—

The anterior common ligament,

The posterior common ligament, and

The intervĕr′tebral substance.

The ligaments of the *arches* of the vĕr′tebræ are—

The ligamĕn′tă subflā′vă.

16

The ligaments of the *Articular Processes* of the vĕr′tebræ are the căp′sular ligaments and sÿnō′vial membranes.

The ligaments of the spī′nous processes of the vĕr′tebræ are the inter-spī′nous and supra-spī′nous.

The ligaments of the transverse processes of the vĕr′tebræ are the inter-transverse.

17

The ligaments of the ARTICULATION OF THE AT'LAS WITH THE OCCIP'ITAL BONE are 7 in number:—

2 anterior occĭp'ĭto-ăt'loid, 1 posterior occĭp'ĭto-ăt'loid, 2 lateral occĭp'ĭto-ăt'loid, and 2 căp'sular ligaments.

ARTICULATION OF THE AXIS WITH THE OCCIP'ITAL BONE. 3 ligaments: 1 occĭp'ĭto-ăx'oid, and 2 odŏn'toid ligaments.

18

ARTICULATION OF THE ATLAS WITH THE AXIS.

Five ligaments:

The anterior ăt'lo-ăx'oid,

The posterior ăt'lo-ăx'oid,

Two căp'sular ligaments, and

The transverse ligament.

19

ARTICULATION OF THE LOWER JAW.

External lateral ligament, internal lateral ligament, and căp'sular ligament; to which are added an inter-articular fī'brous cartilage, and two sŷnō'vial membranes. The lower jaw has, properly, but *one* ligament: the *external lateral.*

20

The stĕr'no clavĭc'ular articulation, the acrō'mĭo clavĭc'ular articulation, and the articulation of the ŭl'na, with the cunēĭform bone, are provided with a complete inter-articular cartilage, and, consequently, with two sŷnō'vial membranes.

21

The movements of the *Lower Jaw* are — depression, elevation, a forward and backward movement, and a movement from side to side.

ARTICULATION OF THE RIBS WITH THE VER'TEBRÆ.

The ligaments of this articulation are so strong as to render dislocation impossible. They are divisible into two groups.

22

FIRST GROUP.

Ligaments connecting the head of the rib with the bodies of the vĕr'tebræ :—the anterior cŏs'to-vĕr'tebral or stĕl'late, the căp'sular ligament, the inter-articular ligament, and two sŷnŏ'vial membranes.

23

SECOND GROUP.

Ligaments connecting the neck and tubercle of the rib with the transverse processes : the anterior cŏs'to-transverse ligament, the middle cŏs'to-transverse, and the posterior cŏs'to-transverse.

24

The first, eleventh, and twelfth *Ribs* have no inter-articular ligament, and consequently but one sŷnŏ'vial membrane.

25

ARTICULATION OF THE RIBS WITH THE STERNUM AND WITH EACH OTHER.

The ligaments of the cŏs′to-stĕr′nal articulations are—the anterior cŏs′to-stĕr′nal, posterior cŏs′to-stĕr′nal, superior cŏs′to-stĕr′nal, inferior cŏs′to-stĕr′nal, and sŷnō′vial membranes.

26

The first, the ninth, and the tenth *Ribs* have no sŷnō′vial membranes. The cŏs′to-xĭph′oid[5] ligaments are attached to the cartilages of the sixth and seventh ribs, and are intended to support the ĕn′sĭform cartilage.

[5] Pronounce zif′oid.

27

The ligaments of THE ARTICULATION OF THE STERNUM are—the anterior stĕr′nal ligament and the posterior stĕr′nal ligament.

The *two proper* ligaments connecting the vĕr′tebral column with the pĕl′vis are—the lŭmbo-săc′ral and lŭm′bo-ĭl′ĭac.

28

ARTICULATION OF THE VER′TEBRAL COLUMN WITH THE PEL′VIS.

Ligaments.

The anterior and posterior common ligaments, intervĕr′tebral substance, ligamĕn′ta subflā′va, căp′sular ligaments, ĭn′ter-spī′nous ligaments, and sū′pra-spī′nous ligament.

Lūm′bo-săc′ral and lŭm′bo-ĭl′ĭac.

29

The ligaments of the ARTICULATION OF THE PEL′VIS are divisible into four groups.

FIRST GROUP.

Ligaments between the săc′rum and ĭ′lĭum :—The săc′ro-ĭ′lĭac anteterior, and the săc′ro-ĭ′lĭac posterior.

30

SECOND GROUP.

The ligaments between the săc′rum and ĭs′chĭum :[6]—The săc′ro-ĭschĭăt′ic[6] anterior (short), and the săc′ro-ĭschĭăt′ic[6] posterior (long).

THIRD GROUP

The ligaments between the săc′rum and cŏc′cyx :—The săc′ro-cŏccў-ge′an[7] anterior, and the săcro-cŏccўge′an[7] posterior.

[6] Pronounce ch as k.

[7] Pronounce coksidge′an.

31

FOURTH GROUP.

The ligaments between the ŏs′sa pū′bis:—The anterior pū′bic, posterior pū′bic, superior pŭ′bic, sub-pū′bic, and the interŏs′seous fĭ′bro-cartilage.

32

UPPER EXTREMITY.

LIGAMENTS OF THE STĔR′NO-CLAVĬC′ULAR ARTICULATION :

The anterior stĕr′no-clăvĭc′ular, posterior stĕr′no – clăvĭc′ular, inter-clăvĭc′ular, cŏs′to-clăvĭc′ular (rhom′bŏid), the inter-articular fĭ′bro-cartilage and two sўnō′vial membranes.

33

UPPER EXTREMITY.

LIGAMENTS OF THE SCĂP′ULO-CLAVĬC′-ULAR ARTICULATION:

Superior acrō′mĭo-clăvĭc′-ular, inferior acrō′mĭo-clăvĭc′ular, cŏr′aco-clăvĭc′ular (trapezŏid′ and cō′noid), inter-articular fĭ′bro-cartilage, and two sÿnō′vial membranes.

34

The *Acrō′mĭo-clăvĭc′ular Articulation* admits of two movements—gliding and rotation.

The proper ligaments of the scăp′ula are the cŏr′aco-acrō′mial and the transverse or cŏr′-acoid ligament.

35

UPPER EXTREMITY.

LIGAMENTS OF THE SHOULDER JOINT:

The scăp′ulo-hū′meral articulation is an ĕnar-thrō′sis, or ball and socket joint; the ligaments are the căp′-sular ligament, the cŏr′aco-hū′meral ligament, and the glē′noid ligament. One sÿnō′-vial membrane.

36

The *Muscles* immediately surrounding the shoulder joint are:

The subscăpulā′ris, sū′-pra-spĭnā′tus, infra-spĭnā′tus, te′rēs-mĭ′nor, the long head of the trĭ′ceps and dĕl′toid.

The long tendon of the bĭ′ceps is within the căp′sular ligament.

37

UPPER EXTREMITY.

LIGAMENTS
OF THE ELBOW JOINT:

The anterior [8]ligament, posterior ligament, internal lateral, external lateral, and one sÿnō′vial membrane.

The movements of the the elbow joint are flexion and extension; the articulation is [8]gĭn′glÿmoid.

[8] Pronounce g hard.

38

UPPER EXTREMITY.

LIGAMENTS
OF THE RĀ′DIO-ŬL′NAR
ARTICULATION

The orbĭc′ular ligament (annular, coronary), the oblīque′ ligament, or li gamĕn′tum te′rēs the interŏs′seous, the anterior inferior, the posterior inferior, inter-articular or triangular fĭ′bro-cartilage, and membrā′na sacciförm′is (sÿnō′vial membrane).

39

UPPER EXTREMITY.

LIGAMENTS
OF THE WRIST JOINT:

Anterior ligament, posterior ligament, internal lateral, external lateral, and the sÿnō′vial membrane.

40

The *relations* of the *Wrist Joint* are the flexor and extensor tendons by which it is surrounded, and the rā′dial and ŭl′nă artery.

The movements of the wrist joint are flexion, extension, adduction, abduction, and circumduction.

41

UPPER EXTREMITY.

THE LIGAMENTS BETWEEN THE ARTICULATIONS OF THE CARPAL BONES:

Dŏr′sal ligaments, păl′mar ligaments, interŏs′seous ligaments, anterior ăn′nular ligament, and 5 sÿnō′vial membranes; the articulation of the pī′sĭform bone with the cūnē′ĭform has a distinct sÿnō′vial membrane.

42

UPPER EXTREMITY.

LIGAMENTS OF THE CAR′PO-METACAR′PAL ARTICULATIONS:

The dŏr′sal ligaments, păl′mar ligaments, and sÿnō′vial membrane; the căp′sular ligament has a proper sÿnō′vial membrane.

43

UPPER EXTREMITY.

METACAR′PO PHALAN′GEAL ARTICULATION:

The ligaments are—the anterior ligaments, two lateral ligaments, and the transverse: the ligaments of the articulation of the phalăn′ges are—the anterior ligament and two lateral ligaments.

44

LOWER EXTREMITY.

HIP JOINT.

Five Ligaments: — The căp′sular, ĭ′lio-fĕm′oral, ligamĕn′tŭm te′rēs, cŏt′ŷloid, and the transverse: the sÿnō′vial membrane is extensive.

45

The movements of the *Hip Joint* are very extensive; they are:—

Flexion,

Extension,

Adduction,

Abduction,

Circumduction, and

Rotation.

46

LOWER EXTREMITY.

KNEE JOINT.

Thirteen ligaments. The five ligaments that are *external* to the articulation are:—The anterior ligament or ligaměn'tŭm patěl'læ, the posterior ligament or ligaměn'tŭm postĭ'cum Winslō'wĭī, internal lateral, and two external lateral.

47

LOWER EXTREMITY.

KNEE JOINT.

Thirteen ligaments. The five ligaments which are *internal* to the articulation are:—The anterior or external crū'cial,[9] posterior or internal crū'cial, transverse ligament, and two cŏr'onary ligaments.

[9] Pronounce crūshial.

48

LOWER EXTREMITY.

KNEE JOINT.

Thirteen ligaments. The three false ligaments are:—The ligaměn'tŭm mucō'sŭm, and two ligaměn'ta ălā'ria.

There are two semi-lunar fĭ'bro-cartilages, the external and internal. The sŷnō'vial membrane is the most extensive in the skeleton.

49

LOWER EXTEMITY.

ARTICULATION BETWEEN THE TĬB'IA AND FĪ'BULA.

Seven ligaments: — The anterior superior ligament, posterior superior, superior interŏs'seous, inferior interŏs'seous, anterior inferior, posterior inferior, transverse ligament, and sÿnō'vial membrane.

50

LOWER EXTREMITY.

ANKLE JOINT.

Three ligaments:— The anterior, internal lateral, and external lateral.

ARTICULATION OF THE TARSAL BONES.

Three kinds of ligaments connect the seven bones of the tarsus to each other: the dŏr'sal, the plăn'tar, and the interŏs'seous.

51

LOWER EXTREMITY.

ARTICULATION OF THE TARSAL BONES.

Dŏr'sal ligaments.—Those deserving of particular mention are: — The external and posterior călcā'neo - astrăg'aloid, the superior, and internal călcā'neo - cū'boid ligaments, and the superior astrăg'alo - scă'phoid ligament.

52

LOWER EXTREMITY.

ARTICULATION OF THE TARSAL BONES.

Plăn'tar ligaments.—The *three* which have especial names are:—The călcā'neo – scă'phoid, long călcā'neo-cū'boid or ligamĕn'tŭm longum plăn'tæ, and the short călcā'neo - cūboid or ligamĕn'tŭm brē've plăn'tæ.

53

LOWER EXTREMITY.

ARTICULATION OF THE TARSAL BONES.

Five interŏs'seous ligaments. One of these is called the călcā'neo-astrăg'aloid. The sÿnō'vial membranes of the tarsus are *four* in number.

54

LOWER EXTREMITY.

TAR'SO-METATAR'SAL ARTICULATION.

The ligaments of this articulation are: — The dŏr'sal ligaments, plăn'tar ligaments, and interōs'seous ligaments. This articulation has *three* sÿnō'vial membranes.

55

LOWER EXTREMITY.

METATAR'SO-PHALAN'GEAL ARTICULATION.

The ligaments of this articulation are: — The anterior or plăn'tar ligaments, two lateral ligaments, and the transverse ligaments.

56

LOWER EXTREMITY.

ARTICULATION OF THE PHALAN'GES.

The ligaments of the phalăn'ges are the same as those of the fingers; they are:— The anterior or plăn'tar ligaments, and two lateral ligaments.

MY̆O̅L'OGY.

1

THE STUDY OF THE MUSCLES IS TERMED MY̆O̅L'OGY.

Muscles are the moving organs of the animal frame. They constitute, by their size and number, the great bulk of the body, upon which they bestow form and symmetry.

2

Muscles are divided into two great classes:—The voluntary muscles or system of animal life, and the involuntary muscles or organic system; to which may be added, the muscle of the vascular system, the heart.

Rectilin'ear muscles,
Compound muscles,
Ra'diated muscles,
Pen'niform muscles,
Antag'onists, congen'erēs.

3

The *Muscles* may be arranged into:—Muscles of the head and neck, muscles of the trunk, muscles of the upper extremity, muscles of the lower extremity. The muscles of the head and neck are subdivided into those of the *head*, *face*, and *neck*.

4

MUSCLES OF THE HEAD AND FACE.

EIGHT GROUPS.

1. Crā'nial group.
2. Or'bital group.
3. Oc'ular group.
4. Nā'sal group.
5. Superior lā'bial group.
6. Inferior lā'bial group.
7. Măx̆'illary group.
8. Aur̆ĭc'ular group.

5

MUSCLES OF THE HEAD AND FACE.

CRĀ'NIAL GROUP.

The occĭp'ito - frontā'lis (găl'ea căp'ĭtis).

OR'BITAL GROUP.

Orbiculā'ris palpebrā'rum,
Corrugā'tor supercĭl'ĭi, and
Tensor tăr'sī.

6

MUSCLES OF THE HEAD AND FACE.

OC'ULAR GROUP.

Levā'tor păl'pebræ,
Rectus superior,
Rectus inferior,
Rectus internus,
Rectus externus,
Oblī'quus superior,
Oblī'quus inferior.

NĀ'SAL GROUP.

Pyramidā'lis nā'sī,
Compressor nā'sī,
Dĭlatā'tor nā'ris.

7

MUSCLES OF THE HEAD AND FACE.

SUPERIOR LĀ'BIAL GROUP (Orbĭculā'ris ō'ris).

Levā'tor lăb'ĭī superiō'ris ālæ'quē nā'sī,
Levā'tor lăb'ĭī superiō'ris prō'prius,
Levā'tor ăn'gulī ō'ris,
Zygomăt'icus major,
Zygomăt'icus minor,
Depressor lăb'ĭī superiō'ris ālæ'quē nā'sī.

8

MUSCLES OF THE HEAD AND FACE.

INFERIOR LĀ'BIAL GROUP (Orbĭculā'ris ō'ris).

Depressor lăb'ĭī inferiō'ris (quadrā'tus mentī),
Depressor ăn'gulī ō'ris (triangulā'ris ō'ris),
Levā'tor lăb'ĭī inferiō'ris (levā'tor mĕn'tī).

9

MUSCLES OF THE HEAD AND FACE.

MAX'ILLARY GROUP.

Massē'ter,
Tempŏrā'lis,
Buccĭnā'tor,[1]
Pterygoide'us externus,
Pterygoide'us internus.

AURĬC'ULAR GROUP.

Attŏl'lens aurem,
At'trăhens aurem,
Rē'trăhens aurem.

[1] Pronounce bukcinā'tor.

10

MUSCLES OF THE NECK.

EIGHT GROUPS.

SUPERFICIAL GROUP.

Depressors of the ōs hȳoi'dēs and lăr'ȳnx,
Elevators of the ōs hȳoi'des and lăr'ȳnx.

LINGUAL GROUP.

Pharȳnge'al group,
Soft palate group,
Prævertebral group,
Proper muscles of the lăr'ȳnx.

11

MUSCLES OF THE NECK.

SUPERFICIAL GROUP.

Platȳs'ma mȳoi'dēs,
Ster'no - cleĭ'do - mastoĭ-de'us,

DEPRESSORS OF THE ŌS HȲOI'DĒS AND LAR'ȲNX.

Ster'no-hȳoide'us,
Ster'no-thȳroide'us,
Thȳ'ro-hȳoide'us,
O'mo-hȳoide'us.

12

MUSCLES OF THE NECK.

ELEVATORS OF THE ŌS HȲOI'DES AND LAR'YNX.

Digăs'trĭcus,
Stȳ'lo-hȳoide'us,
Mȳ'lo-hȳoide'us,
Gĕni'o-hȳoide'us,
[2]Gĕni'o-hȳ'o-glŏs'sus.

LINGUAL GROUP.

[2]Gĕni'o-hȳ'o-glŏs'sus,
Hȳ'o-glŏs'sus,
Linguā'lis,
Stȳ'lo-glŏs'sus, and
Palā'to-glŏs'sus.

[2] Pronounce g *hard* as in given.

13

MUSCLES OF THE NECK.

PHARYNGE'AL GROUP, OR MUSCLES OF THE PHAR'YNX.

Constrictor inferior,

Constrictor mē'dius,

Constrictor superior,

Stȳ'lo-pharȳnge'us,

Palā'to-pharȳnge'us.

14

MUSCLES OF THE NECK.

SOFT PALATE GROUP, OR MUSCLES OF THE SOFT PALATE.

Levā'tor pălā'tī,
Tĕn'sor pălā'tī,
A'zygos ū'vūlæ,
Palā'to-glŏs'sus,
Palāto-pharȳnge'us.

PRÆVERTEBRAL GROUP.

Rectus antī'cus major,
Rectus antī'cus minor,
Scalē'nus antī'cus,
Scalē'nus postī'cus,
Longus cŏl'lī.

15

MUSCLES OF THE NECK.

LĂR'YNX.

Eight muscles. The five larger :—

The Crī'co-thȳroide'us,
Crī'co-ărȳtænoide'us postī'cus,
Crī'co-ărȳtænoide'us, laterā'lis,
Thȳ'ro – ărȳtænoide'us and
Arȳtænoide'us, are the muscles of the chor'dæ vocā'lēs and rī'ma glot'tidis.

16

MUSCLES OF THE NECK.

LĂR'YNX.

Eight muscles. The three smaller :—

The Thȳ'ro-epiglottide'us,
Aryte'no – epiglottide'us superior,
Aryte'no – epiglottide'us inferior, are muscles of the ep"iglot'tis.

17

MUSCLES OF THE TRUNK.

These muscles may be divided into four natural groups:—

1. Muscles of the back.
2. Muscles of the thō'rax.
3. Muscles of the abdō'men.
4. Muscles of the perĭne'um.

The muscles of the back are numerous, and may be arranged into six layers.

18

MUSCLES OF THE BACK.

FIRST LAYER.

Trapē'zius and lătĭs'simus dorsi.

SECOND LAYER.

Levā'tor ăn'gulī scăp'ulæ,
Rhomboide'us minor,
Rhomboide'us major.

THIRD LAYER.

Serrā'tus postī'cus superior,
Serrā'tus postī'cus inferior,
Splē'nius căp'ĭtis,
Splē'nius cŏl'lī.

19

MUSCLES OF THE BACK.

FOURTH LAYER.

(Dorsal Group.)

Săc'ro lumbā'lis,
Longĭs'simus dŏr'sī,
Spĭnā'lis dōr'sī.

(Cervical Group.)

Cervĭcā'lis ascĕn'dens,
Transversā'lis cŏl'lī,
Trachē'lo[3]-măstoide'us,
Complĕx'us.

[3] Pronounce trake'lo.

20

MUSCLES OF THE BACK.

FIFTH LAYER.

(Dorsal Group.)

Semĭ-spĭnā'lis dŏr'sī,
Semĭ-spĭnā'lis cŏl'lī.

(Cervical Group.)

Rectus antī'cus major,
Rectus antī'cus minor,
Rectus laterā'lis,
Oblī'quus inferior,
Oblī'quus superior.

21

MUSCLES OF THE BACK.

SIXTH LAYER.

Multĭf'ĭdus spĭ'næ,
Levatō'rēs costā'rum,
Supra-spĭnā'lis,
Inter-spĭnā'lis,
Inter-transversā'lēs.

MUSCLES OF THE THŌ'RAX.

The principal muscles situated upon the thō'rax belong in their actions to the upper extremity.

22

MUSCLES OF THE THO'RAX.

The *true* Thōrā'cic[4] Muscles are few in number, and appertain exclusively to the actions of the ribs; they are:—The
Intercostā'les exter'nĭ,
Intercostā'les inter'nĭ,
Trĭangulā'ris ster'nĭ.

[4] Pronounce thoras'sic.

23

MUSCLES OF THE ABDŌ'MEN.

The oblĭ'quus exter'nus *(descendens)*,
Oblĭ'quus inter'nus *(ascendens)*,
Cremas'ter,
Transversā'lis,
Rectus,
Pўramidā'lis,
Quadrā'tus lumbō'rum,
[5] Psō'as par'vus,
Dĭ'aphragm.

[5] P not sounded.

24

MUSCLES OF THE ABDŌ'MEN.

The *Dĭ'aphragm* is the muscular septum between the thō'rax and abdō'men. It is composed of a greater muscle and a lesser muscle.

Ligamen'tum arcuā'tum exter'num,
Ligamen'tum arcuā'tum inter'num.

25

THE MUSCLES OF THE PERĬNE'UM in the female are:—The

Constrĭc'tor vagī'næ,
Erĕc'tor clitor'idis,
Transver'sus perĭne'i,
Compressor urē'thræ,
Sphĭnc'ter ā'nī,
Levā'tor ā'nī, and
Coccўge'us.

26

THE MUSCLES OF THE PERĬNE'UM in the male are:—The

Accelerā'tor urī'næ,
Erĕc'tor pē'nis,
Comprĕs'sor urē'thræ,
Transver'sus perĭne'i,
Sphĭnc'ter ā'nī,
Levā'tor ā'ni, and
Coccўge'us.

27

UPPER EXTREMITY.

ANTERIOR THORĂ'CIC REGION

Pectorā'lis major,
Pectorā'lis minor,
Subclā'vius.

LAT'ERAL THORĂ'CIC REGION.

Serrā'tus măg'nus.

ANTERIOR SCAP'ULA REGION.

Subscapulā'ris.

28

UPPER EXTREMITY.

MUSCLES OF THE POSTERIOR SCAPULA REGION.

Sū'pra-spīnā'tus,
Infra-spīnā'tus,
Te're's-minor,
Te're's-major.

ACRŌ'MIAL REGION.

The dĕl'toid muscle.

ANTERIOR HU'MERAL REGION.

Cŏr'aco-brachīā'lis,[6]
Bī'ceps, and
Brachīā'lis[6] antī'cus.

[6] Pronounce brakia'lis.

29

UPPER EXTREMITY.

The Muscle of the Posterior Hu'meral Region is the Trĭ'ceps.

MUSCLES OF THE ANTERIOR BRACH'IAL[7] REGION.

Superficial Layer.

Pronā'tor rā'dĭī te'rēs,
Flexor căr'pī radiā'lis,
Palmā'ris longus,
Flexor sublī'mis dĭgĭtō'rum,
Flexor căr'pī ulnā'ris.

[7] Pronounce brak'ial.

30

UPPER EXTREMITY.

MUSCLES OF THE ANTERIOR BRACH'IAL[8] REGION.

Deep Layer.

Flexor profŭn'dum dĭgĭtō'rum,
Flexor longus pŏl'lĭcis,
Pronā'tor quadrā'tus.

[8] Pronounce brak'ial.

31

UPPER EXTREMITY.

MUSCLES OF THE POSTERIOR BRACH'IAL REGION.

Superficial Layer.

Supīnā'tus longus,
Extĕn'sor căr'pī rādĭā'lis lŏn'gĭor,
Extĕn'sor căr'pī rādĭā'lis brē'vior,
Extĕn'sor commū'nis dĭgĭtō'rum,
Extĕn'sor mĭn'ĭmī dĭ'gitī,
Extĕn'sor căr'pī ulnā'ris, and Ancōne'us.

[9] Pronounce brak'ial.

32

UPPER EXTREMITY.

MUSCLES OF THE POSTERIOR BRACH'IAL REGION.

Deep Layer.

Supīnā'tor brē'vis,
Extĕn'sor ŏs'sis metacăr'pī pŏl'lĭcis,
Extĕn'sor prĭ'mī internō'dĭī pŏl'lĭcis,
Extĕn'sor secŭn'dī internō'dĭī pŏl'lĭcis,
Extĕn'sor ĭn'dĭcĭs.

[1] Pronounce brak'ial.

33

UPPER EXTREMITY.

MUSCLES OF THE HAND.

Rā'dial or Thē'nar Region.

Abdŭc'tor pŏl'lĭcis,

Flexor ŏs'sis metacăr'pī *(oppō'nens pŏl'lĭcis)*,

Flexor brē'vis pŏl'lĭcis,

Abdŭc'tor pŏl'lĭcis.

34

UPPER EXTREMITY.

MUSCLES OF THE HAND.

Ulnar or Hўpŏ'thenar Region.

Palmā'ris brē'vis,

Abdŭc'tor mĭn'ĭmī dĭ'gĭtī,

Flexor brē'vis mĭn'ĭmī dĭ'gĭtī,

Abdŭc'tor mĭn'ĭmī dĭ'gĭtī.

35

UPPER EXTREMITY.

MUSCLES OF THE HAND.

Păl'mar Region.

Four lumbrĭcā'lēs,

Three interŏs'sei pălmā'rēs,

Four interŏs'sei dorsā'lēs.

The lumbricā'lēs were called by the earlier anatomists:—

Fĭdĭcĭn'ĭī *(id est,* that is) fiddler's muscles.

36

UPPER EXTREMITY.

MUSCLES OF THE HAND.

The *index finger* has *one* dorsal interŏs'sei (abdŭc'tor ĭn'dĭcĭs), and *one* păl'mar interŏs'sei. The *middle finger* has *two* dorsal interŏs'sei. The *ring finger* has one dorsal interŏs'sei and one păl'mar interŏs'sei. The *little finger* has one păl'mar interŏs'sei.

37

LOWER EXTREMITY.

MUSCLES OF THE HIP.

Glute'al Region.

Glutæ'us măx'ĭmus,
Glutæ'us mē'dĭus,
Glutæ'us mĭn'ĭmus,
Pyrifŏr'mis,
Geměl'lus superior,
Obturā'tor intĕr'nus,
Geměl'lus inferior,
Obturā'tor extĕr'nus,
Quadrā'tus fĕm'oris.

38

LOWER EXTREMITY.

MUSCLES OF THE THIGH.

Anterior Fĕm'oral Region.

Tensor vagī'næ fĕm'oris,
Sartō'rius, Rectus,
Vastus intĕr'nus,
Vastus extĕr'nus,
Crūræ'us.

Posterior Fĕm'oral Region.

Bī'ceps,
Semi-tendĭnō'sus,
Semi-membranō'sus.

39

LOWER EXTREMITY.

MUSCLES OF THE THIGH.

Internal Fĕm'oral Region.

Ilī'acus intĕr'nus,
Psō'as[2] magnus,
Pectĭnæ'us,
Addŭc'tor longus,
Addŭc'tor brē'vis,
Addŭc'tor magnus,
Grā'cĭlis.

[2] P not sounded.

40

LOWER EXTREMITY.

MUSCLES OF THE LEG.

Anterior Tĭb'ial Region.

Tĭbiā'lis antī'cus,
Extĕn'sor longus dĭgĭtō'rum,
Peronæ'us tertius,
Extĕn'sor prō'prĭus pŏl'lĭcis,
Fĭb'ular region,
Peronæ'us longus,
Peronæ'us brē'vis.

41

LOWER EXTREMITY.

MUSCLES OF THE LEG.

Posterior Tib'ial Region.

Superficial Group.

Gastrocnē'mius,
Plantā'ris, and
Sole'us.

Deep Group.

Poplīte'us,
Flexor longus pŏl'lĭcis,
Flexor longus dĭgĭtō'rum,
Tibiā'lis postī'cus.

42

LOWER EXTREMITY.

MUSCLES OF THE FOOT

Dŏr'sal Region.

Extĕn'sor brē'vis dĭgĭtō rum,
Interŏs'seī dorsā'lēs.

Plăn'tar Region.

First Layer.

Abdŭc'tor pŏl'lĭcis,
Abdŭc'tor mĭn'ĭmī dĭ'gĭ
Flexor brē'vis dĭgĭtō rum.

Second Layer.

Mus'culus accessō'rius
Lumbricā'lēs.

43

LOWER EXTREMITY.

MUSCLES OF THE FOOT.

Plăn'tar Region.

Third Layer.

Flexor brē'vis pŏl'lĭcis,
Addŭc'tor pŏl'lĭcis,
Flexor brē'vis mĭn'ĭmī dĭ'gĭtī,
Transver'sus pē'dis.

Fourth Layer.

Interŏs'seī plantā'rēs.

FĂS'CĬÆ.

1

THE STUDY OF THE FAS'CĬÆ.

Făs'cĭă is the name given to lăm'ĭnæ of various extent and thickness, which are distributed through the different regions of the body, for the purpose of investing or protecting the softer and more delicate organs.

2

The *Făs'cĭæ* may be arranged into two groups:

Arē'olo-fĭ'brous făs'cĭæ, and

Aponeurō'tic făs'cĭæ.

The făs'cĭæ may be arranged into — făs'cĭæ of the head and neck, făs'cĭæ of the trunk, făs'cĭæ of the upper extremity, făs'cĭæ of the lower extremity.

3

FAS'CĬÆ OF THE HEAD AND NECK.

The temporal făs'cĭă and cervical făs'cĭæ (*superficial* cervical făs'cĭă & *deep* cervical făs'cĭă).

FAS'CĬÆ OF THE TRUNK.

The thōrăc'ic[1] făs'cĭă (ascending layer and descending layer).

[1] Pronounce thorass'ic.

4

ABDŎM'INAL FAS'CĬÆ.

The făs'cĭă transversā'lis (Făs'cĭă Cooperi), făs'cĭă ĭlĭ'acă, făs'cĭă pel'vĭcă (recto-vĕs'ical făs'cĭă *or* middle layer, ascending layer, inferior layer of făs'cĭă pĕl'vĭcă), obturā'tor făs'cĭă, perĭne'al făs'cĭæ, superficial perĭne'al făs'cĭă, deep perĭne'al făs'cĭă.

5

FĂS'CĬÆ OF THE UPPER EXTREMITY.

The *Superficial Făs'cĭă*, which contains between its layers the superficial veins and lymphatics, and the superficial nerves. The *Deep Făs'cĭă* (posterior annular ligament), and *Păl'mar Făs'cĭă* divided into three portions: — *A central* portion and *two lateral* portions.

6

FĂS'CĬÆ OF THE LOWER EXTREMITY.

The *Superficial Făs'cĭă*. The deep făs'cĭă of the thigh is named, from its great extent, the făs'cĭă lā'ta. The upper part of the făs'cĭă lā'ta is divided into two portions: — The ĭl ĭac and the pū'bic; between which is the crĭ'brĭform făs'cĭă.

7

LOWER EXTREMITY.

FĂS'CĬĂ OF THE LEG.

Anterior annular ligament. Făs'cĭă of the dorsum of the foot. Făs'cĭă of the posterior part of the leg, superficial layer, deep layer, intermuscular făs'cĭă, internal annular ligament, external annular ligament.

THE PLAN'TAR FĂS'CĬĂ.

Three portions:—
A middle, and two lateral.

ARTERIES.

1

The *Arteries* are the cylin'drical tubes, which convey the blood from the ventricles of the heart to every part of the body.

They are dense in structure, and preserve, for the most part, the cylin'drical form when emptied of their blood, which is their condition after death.

2

The *Artery* proceeding from the left vĕn'trĭcle of the heart contains the pure or artē'rial blood, which is distributed throughout the entire system, and constitutes, with its returning veins, the *greater* or *system'ic circulation*.

3

The *Artery* which emanates from the right vĕn'tricle of the heart, conveys the impure blood to the lungs, and, with its corresponding veins, establishes the *lesser* or *pŭl'monary circulation*.

The study of the blood-vessels is termed Angiŏl'ogy—Angiolo'gia.

4

The whole of the *Arteries* of the systĕm'ic circulation, proceed from a single trunk, named the aor'tă. Arteries are composed of three coats—the external or arē'olo fĭ'brous coat, middle, and internal.

The Arteries do not terminate directly in veins, but in an intermediate system of vessels—the căp'illaries.

5

The *Aor'tă* arises from the left vĕn'tricle, at the middle of the root of the heart, and opposite the articulation of the fourth cŏs'tal cartilage with the stĕr'nŭm. At its commencement it presents three dilatations, called the sī'nus aor'tĭcī, which correspond with the three semi-lunar valves.

6

The *Aor'tă* ascends at first to the right, then curves backwards and to the left, and descends on the left side of the vĕr'tebral column to the fourth lŭm'bar vĕr'tĕbră. It is divided into ascending aor'tă, arch, and descending aor'tă.

7

ASCENDING AOR'TA.

Branches.

The left or anterior cŏr'onary, right or posterior cŏr'onary.

ARCH OF THE AOR'TA.

Branches.

Artē'ria innominā'tă,
Left common carŏt'id,
Left subclā'vian.

8

The *Artē'ria Innominā'tă* has two branches:—
The right common carŏt'id and right subclā'vian.

THŌRA'CIC[1] AOR'TA.

Branches.

The pericar'diac,
The brŏn'chial,[2]
The œsophăge'al,
The intercŏs'tal.

[1] Pronounce thorass'ic.
[2] Pronounce bron'kial.

9

ABDOMINAL AOR′TA.

Branches.

Phrĕn′ic artery, cœ′lic axis artery, sū′prarē′nal, rē′nal, superior mĕsentĕr′ic, spermat′ic, inferior mĕsentĕr′ic, lumbar, săcramē′dia, and common ĭl′ĭacs.

The cœ′lic axis has three branches:— The găs′tric, hēpăt′ic, and splen′ic.

10

The *right* common carŏt′id artery divides into the external carŏt′id artery, and internal carŏt′id artery.

The *left* common carŏt′id artery divides into the external carŏt′id artery, and internal carŏt′id artery.

The artē′ria innominā′tă occasionally gives off a small branch—the middle thȳ′roid artery.

11

EXTERNAL CARŎT′ID ARTERY.

Eleven branches arranged into four groups:—

Anterior Group.

Superior thȳ′roid,
Lĭn′gual, and
Fā′cial.

Superior Group.

Ascending pharȳnge′al,
Parotĭde′an, and
Transverse fā′cial.

12

EXTERNAL CARŎT′ID ARTERY.

Eleven branches arranged into four groups:—

Posterior Group.

Măs′toid,
Occĭp′ital, and
Posterior aurĭc′ular.

Terminal Group.

Tĕm′poral,
Internal măx′ĭllary.

13

SUPERIOR THY'ROID ARTERY.

Branches.

The hȳ'oid,
Superior lărўnge'al,
Inferior lărўnge'al,
Muscular.

LIN'GUAL ARTERY.

Branches.

The hȳ'oid,
Dŏrsā'lis lĭn'guæ,
Sublĭn'gual.

14

FĀ'CIAL ARTERY.

Branches below the Jaw.

Inferior păl'atine.
Submăx'illary,
Submĕn'tal,
Ptĕr'ygoid.

On the Face.

Massetĕr'ĭc,
Inferior lā'bial,
Inferior cŏr'onary,
Superior cŏr'onary,
Laterā'lis nā'sI.

15

The inosculations of the *Fā'cial Artery* are very numerous:—

MAS'TOID ARTERY.

Sometimes this artery is replaced by two small branches.

The OCCIP'ITAL ARTERY gives off only two branches deserving of name:—

The inferior menĭnge'al and the princeps cervI'cis.

16

The POSTERIOR AURĬC'ULAR artery gives off but one named branch —the stў'lo-măs'toid.

The ASCENDING PHARYNGE'AL divides itself at the base of the skull into two branches — the mĕnĭnge'al, and the phărĭnge'al.

17

The TEM′PORAL ARTERY divides into an interior and a posterior tem′poral branch.

The branches of the *Tem′poral Artery* are — The or′bital, anterior, auric′ular, and middle tĕm′poral.

The INTERNAL MAX′ĬLLARY may be divided into three portions — măx′illary, ptĕr′ygoid, and sphē′no-măx′illary.

18

INTERNAL MĂX′ĬLLARY.

Măx′illary Portion.

Branches.

The tympan′ic, inferior dental, artē′ria menĭnge′a mē′dia, artē′ria menĭnge′a par′vă.

Ptĕr′ygoid Portion.

Branches.

Two deep tĕm′poral branches, external ptĕr′ygoid, internal ptĕr′ygoid, massetĕr′ic, and bŭc′cal.

19

INTERNAL MĂX′ĬLLARY.

Ptĕr′ygoid-Măx′illary Portion.

Branches.

Superior dĕn′tal,
In′fra-ŏr′bĭtal,
Ptĕr′ygo-păl′atine,
Sphē′no-păl′atine,
Posterior-păl′atine,
and
Vidian branch.

20

The INTERNAL CARŎT′ID ARTERY is divisible into a cĕr′vĭcal, pē′trous, căv′ernous, and cĕr′ĕbral portion.

The cĕr′vĭcal portion of the internal carŏt′id gives off no branches.

21

INTERNAL CARŎT′ID. ARTERY.

Pē′trous, Căv′ernous and Cĕr′ĕbral Portions.

Their Branches.

The tympăn′ic, anterior meninge′al, ophthăl′mic, anterior cĕr′ĕbral, middle cĕr′ĕbral, posterior communicating, and choroide′an.

[3] Pronounce koroide′an.

22

OPHTHAL′MIC ARTERY.

Branches.

First Group.

The lăch′rymal,
Supra-or′bĭtal,
Posterior ethmoid′al,
Anterior ethmoid′al,
Păl′pĕbral,
Frontal, and
Nā′sal.

Second Group.

The mus′cular,
Anterior cĭl′iary,
Short cĭl′iary,
Long cĭl′iary,
Centrī′lis rĕt′inæ.

23

The course of the SUBCLĀ′VIAN ARTERY is divisible into *three* portions:—

The *first portion* of the right and left subclā′vian arteries differs in its course and relations, in correspondence with the dissimilarity of origin of the respective arteries. The other two portions are precisely alike on both sides.

24

SUBCLĀ′VIAN ARTERY.

Five Primary Branches.

The vĕr′tĕbral, thȳ′roid axis, and profun′dă cervī′cis (cervicā′lis posterior) are ascending arteries.

The superior intercŏs′tal, and internal măm′mary are descending arteries.

25

The THY'ROID AXIS has *four branches:* — The inferior thȳ'roid, sū'-pra-scăp'ular, posterior scăp'ular, superficiā'lis cervī'cis (cervicā'lis anterior).

The two VĔR'TĔBRAL ARTERIES unite at the lower border of the pons Varō'lĭī to form the *băs'ĭlar* artery.

26

VĔR'TĔBRAL ARTERY.

Branches.

The lateral spī'nal,
Posterior menĭnge'al,
Anterior spī'nal,
Posterior spī'nal,
Inferior cĕrĕbĕl'lar.

BAS'ĬLAR ARTERY.

Branches.

The trans'verse,
Superior cĕrĕbĕl'lar,
Posterior cĕrĕbĕl'lar.

27

The communications established between the anterior cĕr'ebral arteries in front, and the internal carŏt'ids and posterior cĕr'ebral arteries behind, by the communicating arteries, constitute the *circle of Willis.*

28

INTERNAL MĂM'MARY ARTERY.

Branches.

The anterior intercŏs'tal,
Măm'mary,
Co'mēs ner'vi phrĕn'ĭcI,
Mediăsti'nal,
Pericar'diac,
Mŭs'culo-phrĕn'ic.

29

The AX'ĬLLARY ARTERY is a continuation of the subclā'vian artery. *Its Branches* are: —

The thorā'cicā acromiā'lis,
Superior thorā'cic,
Inferior thorā'cic,
Thorā'cicā axilla'ris,
Subscăp'ular,
Cir'cumflex anterior,
Cir'cumflex posterior.

30

The BRA'CHIAL[4] ARTERY is a continuation of the ax'ĭllary. *Its Branches* are:—

The superior profun'dă,
Inferior profun'dă,
Anastomŏt'ică magnă, and the
Mus'cular artery.

[4] Pronounce brak'ial.

31

The RA'DIAL ARTERY is one of the divisions of the brā'chial artery. *Its Branches* may be arranged into three Groups: — Those of the fore-arm, the wrist, and the hand.

BRANCHES OF THE RA'DIAL ARTERY IN THE FORE-ARM: — The recurrent rā'dial, and mus'cular.

32

BRANCHES OF THE RA'DIAL ARTERY IN THE WRIST.

The superfĭcĭā'lis vo'læ,
Carpā'lis anterior,
Carpā'lis posterior,
Metacarpā'lis, and
Dŏrsā'lēs pŏl'lĭcis.

BRANCHES OF THE RA'DIAL ARTERY IN THE HAND.

The princeps pŏl'lĭcis,
Rādiā'lis ĭn'dicis,
Interŏs'seæ, and
Perforan'tēs.

33

The UL'NAR ARTERY is the other division of the brā'chial artery. *Its Branches* are arranged into *three Groups:*—Those of the fore-arm, the wrist, and the hand.

BRANCHES OF THE UL'NAR ARTERY IN THE FORE-ARM:

The anterior ul'nar recurrent, posterior ul'nar recurrent, interŏs'seous, and mus'cular.

34

The interŏs'seous branch of the UL'NAR ARTERY has two branches:—The anterior interŏs'seous, and posterior interŏs'seous.

BRANCHES OF THE UL'NAR ARTERY IN THE WRIST:

The carpā'lis anterior, and carpā'lis posterior.

The BRANCHES OF THE UL'NAR ARTERY IN THE HAND are—the digitā'lēs.

35

THŌRĂ'CIC AOR'TĂ.

Branches.

The bron'chial,[5] œsophage'al, and intercŏs'tal.

The bron'chial arteries are four in number.

The œsophage'al are numerous small branches.

The intercŏs'tal are nine in number.

The bron'chial arteries are the nutritious vessels of the lungs.

[5] Pronounce bronk'ial.

36

ABDŎM'INAL AOR'TĂ.

The phrĕn'ic arteries divide each into two branches—an external and an internal.

The cœ'liac divides into three branches. The găs'tric artery (coronā'ria ventrĭc'ulī) is the smallest of these three.

37

ABDŎM′INAL AOR′TĂ.

HEPAT′IC ARTERY.

Branches.

Pȳlō′ric,
Gastro-duodenā′lis,
Cȳs′tic.

BRANCHES OF THE GASTRO-DUODENA′LIS.

Gastro-ĕpĭploi′că dextră,
Pancreăt′ico-duodenā′lis.

38

ABDŎM′INAL AOR′TĂ.

SPLĔN′IC ARTERY.

Branches.

Pancreăt′icæ par′væ,
Pancreăt′ică magnă,
Vā′să brē′viă,
Gastro-epiploi′că sinĭs′-tră.

SUPERIOR MESENTER′IC ARTERY.

Branches.

The vā′să intestī′nī tĕn′-uis, ĭ′leo-col′ică, col′ică dextră, col′ică mē′diă.

39

ABDŎM′INAL AOR′TĂ.

INFERIOR MESENTER′IC ARTERY.

Branches.

The col′ică sinĭs′tră,
Sigmoi′deæ, and
Superior hæmorrhoi′dal.

There are many varieties in the branches of the abdŏm′inal aor′tă.

40

The abdŏm′inal aor′tă divides opposite the fourth lumbar vĕr′tĕ-bră into the *two common* īl′ĭac arteries.

The īl′ĭac arteries divide into the internal īl′ĭac artery, and external īl′ĭac artery.

41

INTERNAL ĬL′ĬAC ARTERY.

Anterior Trunk.
Branches.

The umbĭl′ical, middle vĕs′ical, middle hæmorrhoid′al, ĭschiăt′ic,[6] internal pū′dic; and in the female, the ū′terĭne and vagī′nal.

Posterior Trunk.

The ĭ′lio-lumbar, obturā′tor, lat′eral săc′ral, and glute′al.

[6] Pronounce iskiăt′ic.

42

The branches of the *Ischiăt′ic′ Artery* within the pĕl′vis are:—The hæmorrhoid′al and inferior vĕs′ĭcal. The branches of the ischiăt′ic artery externally to the pĕl′vis are:—The coccўge′al, inferior glūte′al, co′mēs ner′vī ischiăt′ĭcī, and mus′cular branches.

[7] Pronounce iskiăt′ic.

43

INTERNAL PU′DIC ARTERY.

The *Branches within* the pĕl′vis are several small rāmus′culī to the base of the bladder, vēsī′culæ seminā′lēs, and prostate gland; and hæmorrhoid′al branches, which frequently take the place of the middle hæmorrhoid′al branch of the internal ĭl′ĭac.

44

INTERNAL PU′DIC ARTERY.

Branches given off externally to the pĕl′vis:
External hæmorrhoid′al,
Superficiā′lis perĭne′ī,
Transversā′lis perĭne′ī,
Artē′ria cor′poris bulbō′sī,
Artē′ria cor′poris cavernō′sī,
Artē′ria dorsā′lis pē′nis.

45

The EXTERNAL IL'IAC ARTERY, besides several small branches which supply the glands, gives off two branches:—The ĕpĭgăs'tric and circumflex'ă ĭ'lĭī. The only branches of the ĕpĭgăs'tric artery worthy of distinct notice are:—The crēmăstĕr'ic and the rāmŭs'culus, which inosculates with the obturā'tor artery.

46

The CIRCUMFLEX'Ă I'LĬĪ gives off a large ascending branch, which divides into numerous branches.

The FĔM'ORAL ARTERY is a continuation of the external ĭl'ĭac artery.

47

FĔM'ORAL ARTERY.

Branches.

The superficial circumflex'ă i'lii, superficial ĕpĭgăs'tric, superficial external pū'dic, deep external pū'dic, profŭn'dă, mus'cular, and anastomŏt'ică magnă.

BRANCHES OF PROFŬN'DĂ FĔM'ORIS.

External cir'cumflex, internal cir'cumflex, and three perforating.

48

FĔM'ORAL ARTERY.

Branches.

The external cir'cumflex divides into three branches:—
The ascending,
Descending, and
Middle.

The three perforating arteries are:—
The superior perforating,
Middle perforating, and
Inferior perforating.

49

POPLĬT'EAL ARTERY.

Branches.

Superior external artĭc'ular, superior internal artĭc'ular, A'zўgos artĭc'ular, inferior external artĭc'ular, inferior internal artĭc'ular, and sū'ral arteries.

The Poplĭt'eal Artery commences from the termination of the fĕm'oral.

50

ANTERIOR TĬB'IAL ARTERY.

Branches.

The recurrent branch, muscular branches, external malē'olar, internal malē'olar.

DORSĀ'LIS PĒ'DIS ARTERY.

Branches.

The tăr'sea, metatăr'sea, Dorsā'lis halūcis, { collateral / dĭ'gĭtal.

Communicating artery.

The metatăr'sea gives off three branches:—The interŏs'seæ.

51

POSTERIOR TĬB'IAL ARTERY.

Branches.

The perone'al,
Nutrĭ'tious,
Muscular,
Internal calcā'nean,
Internal plăn'tar,
External plăn'tar.

PERONE'AL ARTERY.

Branches.

Muscular and two terminal branches — the anterior perone'al and posterior perone'al.

52

The *Posterior Perone'al* distributes external calcā'nean branches to the ōs calcis, and to the muscles arising from it. One of the muscular branches of the posterior tĭb'ial artery, a recurrent branch, is deserving of notice.

53

PLANTAR ARTERIES.

The *internal plăn'tar* artery supplies the inner border of the foot and great toe.

EXTERNAL PLANTAR.

Branches.

The muscular,
Articular,
Dĭ'gĭtal, and
Posterior perforating.

The branches of the four dĭ'gĭtal branches are the anterior perforating.

54

The PUL'MONARY ARTERY divides into the right pŭl'monary and left pŭl'monary. These arteries divide and subdivide in the structure of the lungs, and terminate in căp'illary vessels, which form a net-work around the air-passages and cells, and become continuous with the radicles of the pŭl'monary vein.

VEINS.

1

The *Veins* are the vessels which return the blood to the auricles of the heart, after it has been circulated by the arteries through the various tissues of the body. The veins of the *sÿstĕm'ic circulation* convey the dark-coloured and impure or *venous* blood from the căp'illary system to the *right* auricle of the heart.

2

The *Veins* of the pŭl'monary circulation resemble the *arteries* of the sÿstĕm'ic circulation, in containing, during life, the pure or arterial blood, which they transmit from the căp'illaries of the lungs to the *left* auricle of the heart. Veins admit of a threefold division, into superficial veins, deep veins, and sī'nuses.

3

In company with all the *smaller* arteries, and also with the *secondary* arteries, there are two veins placed on each side of the artery, and named *vē'næ cŏm'itēs.*

Veins, like arteries, are composed of three coats: external or arē'olo-fī'brous, middle or fī'brous, and internal or sē'rous.

4

The larger arteries are accompanied by a single ve'nous trunk.

The veins of the head and neck may be arranged into three groups: — The veins of the exterior of the head, veins of the dĭp'loe and interior of the crā'nium, and veins of the neck.

5

VEINS OF THE EXTERIOR OF THE HEAD.

The fā′cial, internal măx′-ĭllary, tĕm′poral, tĕm′-poro-măx′ĭllary, posterior auric-ular, and occĭp′ital.

The fā′cial vein in its course is named the frontal vein, angular vein, and with its fellow vein forms the nā′sal arch.

6

BRANCHES WHICH THE FĀ′CIAL VEIN RECEIVES IN ITS COURSE:—

The sū′pra-ŏr′bĭtal, dorsal veins of the nose, ophthăl′mic, păl′pebral, nā′sal, and the alvē′olar.

The internal măx′ĭllary vein receives the branches from the zȳgomăt′ic and ptĕr′ygoid fŏs′sæ.

These branches constitute a ptĕr′ygoid plexus.

7

The internal măx′ĭllary vein joins with the temporal vein, and thus they form the temporo – măx′ĭllary vein.

The *temporal vein* is joined by the middle temporal vein. The posterior auric′ular vein receives the veins from the external ear and the stȳ′lo-mas′toid vein.

8

The tĕm′poro-măx′ĭllary receives the anterior auric′ular, massetĕr′ic, transverse fā′cial, parŏt′id veins; and near its termination is joined by the posterior auric′ular vein.

9

VEINS OF THE DĬP'LOĒ.

The dĭp'loē of the bones of the head is furnished in the adult with irregular sī'nuses. They receive their blood from the căp'illaries, supplying the cellular structure of the dĭp'loē, and terminate externally in the veins of the pericrā'nium, and internally in the veins and sī'nuses of the dū'ră mā'ter.

10

CER'EBRAL VEINS AND CEREBEL'LAR VEINS.

The cĕr'ebral veins are remarkable for the absence of valves, and for the extreme tenuity of their coat. They may be arranged into the—*Superficial* veins, and the *deep* or ventrĭc'ular veins. The cerebĕl'lar veins terminate in the lateral and petro'sal sī'nuses.

11

The *superficial* cĕr'ebral veins are named according to the position which they may chance to occupy on the hemispheres, either *superior* or *inferior*, internal or external, anterior or posterior; deep or ventrĭc'ular veins, and the two vē'næ Galē'ni.

12

The SĪ'NUSES OF THE DŪ'RA MA'TER are irregular channels formed by the splitting of the layers of that membrane, and lined upon their inner surface by a continuation of the veins. They may be divided into two groups.

13

SĪ′NUSES OF THE DŪ′RA MĀ′TER.

First Group.

Situated at the upper and back part of the skull:

The superior longitudinal sī′nus, the inferior longitudinal sī′nus, straight sī′nus, occĭp′ĭtal sī′nuses, and lateral sī′nuses.

The TOR′CULAR HEROPH′ILI is the point of communication of six sī′nuses.

14

SĪ′NUSES OF THE DŪRA MĀ′TER.

Second Group.

Those of the base of the skull: — The cavernous sī′nuses, inferior petro′sal, circular sī′nus (sī′nus of Ridley), superior petro′sal, and transverse sī′nus (basilar, anterior occĭpĭtal).

15

VEINS OF THE NECK.

The veins of the neck which return the blood from the head are— the external jūgular, anterior jūgular, internal jūgular, and vĕr′tebral vein.

EXTERNAL JU′GULAR.

Branches which it receives:— The occĭp′ĭtal cutā′neous, posterior cĕr′vĭcal cutā′neous, sū′pra and posterior scăp′ula.

16

VEINS OF THE NECK.

INTERNAL JU′GULAR VEIN.

Branches which it receives: — The fā′cial, lĭn′gual, inferior pharўnge′al, occĭp′ĭtal, superior and inferior thў′roid veins.

The inferior thў′roid veins receive the venous blood from the thў′roid gland.

17

VEINS OF THE NECK.

VER′TEBRAL VEIN.

Branches which it receives in its course :—

The posterior cŏn′dўloid vein,
Muscular branches,
Cĕr′vĭcal menĭn′go – rachĭd′ian[1] veins,
Superficial and deep cĕr′vĭcal veins.

[1] Pronounce ch as k.

18

The veins of the Upper Extremity are the deep veins, and superficial veins. The *deep* veins accompany the branches and trunks of the arteries, and constitute their vē′næ cŏm′ĭtēs.

19

UPPER EXTREMITY.

SUPERFICIAL VEINS OF THE FORE-ARM.

Anterior ul′nar vein,
Posterior ul′nar vein,
Basĭl′ic[2] vein,
Rā′dial vein,
Cēphăl′ic vein,
Mē′dian vein,
Mē′dian basĭl′ic vein,
Mē′dian cēphăl′ic vein.

[2] (Royal or principal).

20

The vē′næ cŏm′ĭtēs of the rā′dial and ul′nar arteries are enclosed in the same sheath with those vessels, and terminate at the bend of the elbow in the brā′chial[3] veins. The *anterior ul′nar vein* collects the ve′nous blood from the inner border of the hand, and from the vein of the little finger, vē′na salvatel′la.

[3] Pronounce brāk′ial.

21

The brā′chial[4] vē′næ cŏm′ītēs are situated one on each side of the artery, and open into the ăx′ĭllary vein. The ăx′ĭllary vein becomes the subclā′vian, and the subclā′vian unites with the internal jū′gular, to form the vē′na innominata.

[4] Pronounce brāk′ial.

22

The *Veins* opening into the subclā′vian vein are—the cēphăl′ic below the clă′vĭcle, and the external and anterior jū′gulars above. The *posterior ul′nar vein* terminates in the *anterior ul′nar vein*; the *anterior ul′nar vein* becomes the băsĭl′ic vein; the băsĭl′ic vein becomes the ăx′ĭllary vein.

23

The rā′dial vein becomes the cēphăl′ic vein, the cēphăl′ic vein terminates in the subclā′vian vein, the mē′dian vein divides into two branches, the mē′dian cēphăl′ic and mē′dian băsĭl′ic. The mē′dian cēphăl′ic goes to join the cēphăl′ic vein; the mē′dian băsĭl′ic vein terminates in the băsĭl′ic vein.

24

The VEINS OF THE LOWER EXTREMITY are the *deep* and *superficial*. The deep veins accompany the branches of the arteries in pairs, and form the vē′næ cŏm′ītēs of the anterior and posterior tĭb′ial and perone′al arteries; these veins unite in the poplĭt′eal region to form the poplĭt′eal vein.

25

The poplĭt'eal vein becomes the fĕm'oral vein, and the external ĭ'lĭac vein.

The poplĭt'eal vein receives several muscular and articular branches, and the external saphē'nous vein. The fĕm'oral vein receives the muscular veins, the profŭn'da and the internal saphē'nous vein.

26

VEINS OF THE LOWER EXTREMITY.

The superficial veins are the *external or short* saphē'nous, and the *internal or long* saphē'nous.

The internal saphē'nous vein receives in its course the cutaneous veins of the leg and thigh, and communicates freely with the deep veins.

27

VEINS OF THE TRUNK.

The superior vē'nă cā'vă, with its formative branches; the inferior vē'nă cā'vă, with its formative branches; the a'zўgos vein, the vĕr'tebral and spī'nal veins, the căr'diac veins, the portal vein, the pŭl'monary veins.

28

FORMATIVE BRANCHES OF THE SUPERIOR VE'NA CA'VA.

The right vē'nă innominā'tă, and left vē'nă innominā'tă. The right vē'nă innominā'tă receives the ductus lymphăt'icus dexter, and has opening into it the right vĕr'tebral, right internal măm'mary and right inferior thў'roid vein.

29

The left vē′nă innominā′tă receives the thōrā′cic[5] duct, and in its course is joined by the left vĕr′tebral, left inferior thȳ′roid, left măm′mary, and superior intercŏs′tal vein.

FORMATIVE BRANCHES OF THE INFERIOR VE′NA CA′VA.

The external ĭ′lĭac vein, internal ĭ′lĭac vein, vĕs′ĭcal and prostăt′ic plexus, ū′terine plexus, and common ĭ′lĭac veins.

[5] Pronounce thorass′ic.

30

The external ĭ′lĭac vein receives the ĕpĭgās′tric and circumflexa ĭ′lĭī veins the internal ĭ′lĭac vein receives the returning blood from the glute′al, ischiăt′ic,[6] internal pu′dic, and obturā′tor veins externally to the pĕl′vis, and from the vĕs′ĭcal and ū′terine plexuses within the pĕl′vis.

[6] Pronounce iskiatic.

31

The *vĕs′ĭcal and prostăt′ic plexus* receives its blood from the great dorsal vein of the pē′nis, and from the veins of the external organs of generation.

The common ĭ′lĭac veins are formed by the union of the external and internal ĭ′lĭac vein. The right common ĭ′lĭac vein has no branch opening into it; the left common ĭ′lĭac vein receives the vē′nă săc′ră mē′dĭă.

32

THE INFERIOR VE′NĂ CA′VĂ.

BRANCHES WHICH IT RECEIVES IN ITS COURSE:

The *Lŭm′bar* veins, right spermăt′ic vein (ovā′rian veins), rē′nal or emulgent veins, sū′prarē′nal veins, phrĕn′ic veins, and hēpăt′ic veins. The left spermăt′ic vein terminates in the left rē′nal vein.

33

A′ZŸGOS VEINS.

The vē′nă a′zygos major, vē′nă a′zygos minor, and superior intercŏs′tal vein.

VER′TEBRAL AND SPĪ′NAL VEINS.

Dorsi-spī′nal, menin′gorachidian, meduḷ′lispī′nal.

THE CAR′DIAC VEINS.

Great car′diac vein, posterior car′diac veins, anterior car′diac veins, vē′næ Thesbē′sĭī.

34

The PORTAL SYSTEM is composed of four large veins, which return the blood from the chylopoiet′ic[7] vĭs′ceră; they are:—

The inferior mesenter′ic vein,
Superior mesenter′ic vein,
Splen′ic vein, and
Gastric veins.

The vē′nă portæ is formed by the union of the splenic and superior mesenter′ic vein.

[7] Pronounce kylopoiet′ic.

35

THE PUL′MONARY VEINS.

These veins, four in number, return the arterial blood from the lungs to the left auricle of the heart. There are valves in the pul′monary veins.

LYMPHATICS.

1

The *Lymphatics* or absorbents are minute, delicate, and transparent vessels; their office is to collect the products of digestion and the dētrĭ'ta of nutrition, and convey them into the vē'nous circulation near the heart.

They divide into several small branches before entering a gland.

2

The lymphatic vessels in their course are intercepted by numerous small sphĕroid' or oblong, or flattened bodies, lymphatic glands. The lymphatic vessels *entering* these glands are termed—vasa afferĕn'tia or inferĕn'tia; those which quit the glands are termed vasa efferĕn'tia.

3

Lymphatic vessels admit of a threefold division into superficial lymphatic vessels, deep lymphatic vessels, and lacteals. They are composed of three coats: external, middle and internal; they are smallest in the neck, larger in the upper extremities, and larger still in the lower limbs.

4

Lymphatic vessels have never been found in the brain, spinal cord, eye, bones, cartilages, tendons, membranes of the ovum, umbilical cord, and placen'ta.

Lymphatic glands and their vessels are supplied with arteries, veins, and nerves, like other structures.

5

LYMPHATICS OF THE HEAD AND NECK.

The superficial lymphatic glands of the head and face are small, few in number, and isolated. They are:—

The occĭp'ĭtal,
Posterior auric'ular,
Zȳgomăt'ic,
Parŏt'id,
Bŭc'cal, and
Submăx'ĭllary.

6

The *superficial* cervical lymphăt'ic[1] *glands* are few in number and small.

The *deep* cervical *glands* (glăn'dulæ concatenā'tæ) are numerous and large in size.

[1] Pronounce lymfat'ic.

7

The *superficial* lymphatic *vessels* of the head and face are disposed in three groups:—

The occĭp'ĭtal,
The tĕm'poral, and
The fā'cial.

The deep lymphatic vessels of the head are—the menĭnge'al and cĕr'ebral.

8

The deep lymphatic vessels of the face proceed from the nā'sal fŏs'sæ, mouth, and phăr'ynx, and terminate in the submăx'ĭllary and deep cervical glands.

The superficial and deep cervical lymphatic vessels accompany the jū'gular veins.

9

LYMPHATICS OF THE UPPER EXTREMITY.

The superficial lymphatic glands of the arm, four or five in number, and of very small size.

Deep glands in the forearm excessively small, and infrequent.

Ax'illary glands numerous, and of large size.

Superficial lymphatic *vessels* and the deep lymphatics.

10

LYMPHATICS OF THE LOWER EXTREMITY.

The *superficial* lymphatic glands are the in'guinal, and one or two situated in the superficial fās'cĭă of the posterior aspect of the thigh. The in'guinal glands are divided into two groups, a superior group and an inferior group.

11

LYMPHATICS OF THE LOWER EXTREMITY.

The *deep* lymphatic glands are the anterior tĭb'ial, poplĭt'eal, deep in'guinal, glute'al, and ischiăt'ic.[2]

The superficial lymphatic *vessels* are divisible into two groups—internal and external. The *deep* lymphatic vessels accompany the deep veins.

[2] Pronounce iskiat'ic.

12

LYMPHATICS OF THE TRUNK.

The superficial, the deep, and the visceral,

The superficial lymphatic vessels,

Deep lymphatic vessels,

Deep lymphatic glands of the thō'rax,

Deep lymphatic vessels of the thō'rax,

Deep lymphatic glands of the abdō'men,

Deep lymphatic glands of the pĕl'vis.

13

LYMPHATICS OF THE TRUNK.

The deep lymphatic *glands* of the thō′rax are:—The intercŏs′tal, internal măm′mary, anterior mediăsti′nal, and posterior mediăsti′nal.

The deep lymphatic *vessels* of the thō′rax are:—The intercŏs′tal, internal măm′mary, and diaphragmăt′ic.

14

LYMPHATICS OF THE TRUNK.

The deep lymphatic glands of the abdō′men are—The lŭm′bar glands; they are very numerous.

The deep lymphatic glands of the pĕl′vis are:—

The external i′lĭac,
Internal i′lĭac, and
Săc′ral.

15

LYMPHATICS OF THE VĬS′CERĂ.

The lymphatic vessels of the lungs,
Lymphatic vessels of the heart,
Pericardiac and thymic lymphatic vessels,
Lymphatic vessels of the liver,
Lymphatic glands of the spleen,
Lymphatic glands of the pan′creas.

16

LYMPHATICS OF THE VĬS′CERĂ.

Lymphatic vessels of the spleen,
Lymphatic vessels of the pancreas,
Lymphatic glands of the stomach,
Lymphatic glands of the small intestines (named mesentĕr′ic glands),
Lymphatic vessels of the small intestines.

17

LYMPHATICS OF THE VĬS′CERĂ.

The lymphatic vessels of the small intestines are of two kinds the *lacteals* are one kind.
Lymphatic glands of the large intestines,
Lymphatic vessels of the large intestines,
Lymphatic vessels of the kidney,
Lymphatic vessels of the vĭs′ceră of the pĕl′vis,
Lymphatic vessels of the testicle.

18

LYMPHATICS.

The *thoracic duct* commences in the abdō′men by a considerable dĭlatā′tion, the receptāc′ulum chȳ′lī.[3]
The *ductus lymphat′icus dexter* is a short trunk which receives the lymphatic vessels from the right side of the head and neck, right upper extremity, right side of the thō′rax, right lung, and one or two branches from the liver.

[3] Pronounce kȳ′lī.

1

NEURŎL'OGY.

The nervous system consists of a central organ, the cĕr'ebro-spinal centre or axis, and of numerous rounded and flattened white cords, the nerves, which are connected by one extremity with the cĕr'ebro-spinal centre, and by the other are distributed to all the textures of the body.

The sympathĕt'ic system is an exception to this description.

2

The cĕr'ebro-spinal axis consists of *two portions*, the brain and the spinal cord. The cĕr'ebro-spinal axis presents two substances: a grey or cinerĭ'tious or cortical substance, and a white or medŭl'lary substance. Two kinds of grey substance described by Rolando:—Substăn'tia ciner'eă spongiō'sa vasculō'sa, and substăn'tia ciner'eă gelatinō'sa.

3

The microscopic elements of the nervous system are:

White nerve-fibres,[1]
Grey nerve-fibres,
Nerve cells, and
Nerve grăn'ules.

Nerves are divisible into two great classes: those which proceed directly from the cĕr'ebro-spinal axis, and those which originate from the sympathet'ic system.

[1] Pronounce fī'burs.

4

The colour of the *sympathet'ic* nerves is of a greyish pearly tint.

The *nervous system* may be divided into—

The brain,
Spī'nal cord,
Crā'nial nerves,
Spī'nal nerves, and
Sympathĕt'ic system.

5

The *Brain* signifies those parts of the nervous system (exclusive of the nerves themselves) which are contained within the crā'nium. They are:— The cĕr'ebrum, cerebĕl'lum, and medŭl'la oblongā'ta.

These are invested and protected by the membranes of the brain, and the whole together constitute the encĕph'alon.

6

The membranes of the encĕph'alon are the dū'ra mā'ter, arăch'noid[2] membrane, and pī'a mā'ter. Chor'dæ Willĭs'ĭī and glăn'dulæ Pacchioni (relate to dū'ra mā'ter); processes of dū'ra mā'ter, the falx cĕr'ĕbrī, tentō'rium cerebĕl'lī, and falx cerebĕl'lī.

[2] Pronounce arak'noid.

7

ARACH'NOID[2] MEMBRANE.

The anterior sub-arachnoide'an space,

Posterior sub-arachnoide'an space,

Superior sub-arachnoide'an space,

Spinal sub-arachnoide'an space,

Sub-arachnoide'an fluid.

[2] Pronounce arak'noid.

8

The *Cĕr'ĕbrum* is divided superiorly into two hemispheres; each hemisphere, upon its under surface, admits of a division into three lobes:—

Anterior lobe,
Middle lobe,
Posterior lobe.

9

CE'REBRUM.

Centrum ovā'le mī'nus (puncta vasculō'sa), centrum ovā'le mā'jus, corpus callō'sum, gy'rus fornicā'tus, great commissure, transverse fissure *or* fissure of Bī'chât,[4] lateral ventricles.

Each lateral ventricle is divided into a central cavity and three small cavities, called cor'nua.

[4] Pronounce Bē'shar.

10

CER'EBRUM.

LATERAL VENTRICLES.

Anterior cŏr'nu, middle cŏr'nu, posterior cŏr'nu, cŏr'pus strīā'tum, tē'nia semicirculā'ris, thăl'amus ŏp'tĭcus, chō'roid[5] plexus, corpus fimbrĭā'tum, fornix.

Vē'na cŏr'pŏris strīā'tī, tenia Tarini, forā'men of Monro, tenia hippocampi, hippocămpus minor.

[5] Pronounce ko'roid.

11

CER'EBRUM.

LATERAL VENTRICLES.

Hippocăm'pus major or cŏr'nu ammō'nis, pēs hippocăm'pi, pēs accessō'rius, cŏrpus fimbriā'tum, chō'roid plexus, fās'cia dentā'ta, transverse fissure, septum lū'cĭdum, fifth ventricle, lyra, (corpus psalloï'des) ve'lum interpositum.

12

CER'EBRUM.

Thăl'ami ŏp'tici, third ventricle, corpus geniculā'tum externum and intĕr'num, anterior commissure, middle or soft commissure, posterior commissure, forā'men commu'ne antē'rius *or* forā'men of Monro *or* iter ad infundĭb'ulum; the forā'men commu'ne postē'rius or iter a tertio ad quartum ventrĭc'ulum.

13

CER'EBRUM.

Cor'pora quadrigĕm'ina or optic lobes; anterior pair, na'tes, posterior pair, tĕs'tes, brā'chium[6] antē'rius, brā'chium postē'rius, lā'queus; pī'neal gland. The fourth ventricle is the ventricle of the medŭl'la oblongā'ta.

[6] Pronounce brak'ium.

14

Fourth Ventricle.

Sī'nus rhomboidā'lis, processus e cerebĕl'lo ad tĕs'tes, corpus restiforme, valve of Vieussens, vē'lum medullā're postē'rius, nō'dŭlŭs and ū'vŭlă, amўg'dalæ, frœ'nulum vē'lī medullā'ris anteriō'ris, processus tĕr'ĕtēs, căl'amus scriptō'rius.

Lining membrane of the ventricles.

15

The CEREBEL'LUM is seven times smaller than the cĕr'ebrum.

Superior vermiform process, incīsū'ra cerebĕl'li anterior and posterior.

Sulcus horizontā'lis, lo'bus superior anterior, lo'bus superior posterior, lo'bus inferior anterior, lo'bus inferior mē'dius, lo'bus inferior posterior, lo'bus inferior internus or tonsil.

16

CEREBEL'LUM.

Flŏc'culus, or pneumogăs'tric lob'ule, lob'ulus centrā'lis, montic'ulus cerebĕl'li, commissura simplex, commissu'ra brevis, the pyramid, nī'dus hĭrŭn'dinis (the swallow's nest), arbor vī'tæ cerebĕl'li, corpus rhomboide'um, crura cerebĕl'li ad pontem, crura ad medŭl'lam oblonga'tam.

17

CEREBEL'LUM.

The vē'lum medullā're antē'rius (valve of Vieussens), vē'lum medullā're posterior (valvula Tarini).

BASE OF THE BRAIN.

The longitudinal fissure, ŏlfăc'tory nerves, fissure of Sylvius, substăn'tia perforā'ta, commencement of the transverse fissure, optic commissure, tū'ber cĭnĕr'eum.

18

BASE OF THE BRAIN.

Infundĭb'ulum, cor'pora albicantia, locus perforā'tus, crura cĕr'ebri, pons Varō'lĭī, crura cerebĕl'li, medŭl'la oblongā'ta. Lā'mina cĭnĕr'ea, medŭl'la innominā'ta, island of Reil. Cŏr'pora albicăntia (mammillā'ria, pĭ'siformia, bulbi for'nicis).

19

Pons Varō'lĭī (protuberantia annulā'ris, nodus encĕph'ali).

The MEDŬL'LA OBLONGATA, (bulbus rachĭd'icus), is the upper enlarged portion of the spinal cord.

Cŏr'pora pўramidā'lia, cŏrpora olivā'ria, funĭc'ulī sĭl'ĭquæ, fĭ'bræ arcifŏr'mes (corpus dentā'tum, nucleus olĭ'væ).

20

MEDŬL'LA OBLONGA'TA.

Cŏr'pora restifor'mia, posterior median columns (funĭc'uli grā'ciles), procĕs'sus clāvā'tus, diverging fibres, ganglia of increase. The diverging fibres constitute both the cĕr'ĕbrum and cereběl'lum.

Anterior lăt'eral sŭl'cus, posterior lăt'eral sŭl'cus.

21

The converging fibres are called commĭs'sures.[7] The commĭs'sures of the cĕr'ebrum and cerebĕl'lum are the corpus callō'sum, fŏr'nix, septum lū'cĭdum, anterior commĭs'sure, middle commĭs'sure, posterior commĭs'sure, pedŭn'cles of the pĭ'neal gland and pons Varō'lĭi.

[7] Pronounce ss as sh.

22

SPINAL CORD.

The spinal column contains the spinal cord, or medŭl'la spĭna'lis, the roots of the spinal nerves, and the membranes of the cord, the dura mater spĭna'lis (the'ca vertebra'lis), arăch'noid,[8] pĭa mā'ter, and membrā'na dentā'ta, posterior lateral sulcus, an'tero-lăt'eral columns, posterior columns.

[8] Pronounce arak'noid

23

There are nine pairs of crā'nial nerves.

1st pair, the ŏlfac'tory.

2nd pair, the ŏp'tic.

3rd pair, the motō'rēs oculō'rum.

4th pair, the pathĕt'icĭ, (trochleā'rēs).[9]

5th pair, the trĭfā'cial, (trĭgĕm'inĭ).

6th pair, the abducĕn'tēs.

[9] Pronounce troklea'res.

24

There are nine pairs of crā'nial nerves.

7th pair, fā'cial nerve (portio dura) auditory nerve (portio mŏl'lis); portio intermed'ia of Wrisberg, a third nerve.

8th pair, glŏs'so-pharyn-ge'al, pneumogăs'tric (vā'gus, par vagum), spinal ăc'cessory.

9th pair, hypoglŏs'sal (lĭng'ual).

25

THE NERVES OF SPECIAL SENSE are :—

The ŏlfac'tory,
The ŏp'tic, and
The au'dĭtory.

THE NERVES OF MOTION are the—

Motō'rēs oculō'rum,
Pathĕt'icI,
Abducĕn'tēs,
Fā'cial, and
Hўpoglŏs'sal.

26

The compound nerves are :—

The trĭfā'cial, glossopharўnge'al, pneumogăs'tric, and spinal ăc'cessory. Compound nerves are those which contain fibres both of sense and motion.

ŎLFAC'TORY NERVE.

Inner root, middle root, external root, bulbus ŏlfactō'rius.

27

OPHTHAL'MIC NERVE.

Branches.

The frontal nerve, lăch'rўmal [1] nerve, nā'sal nerve (nāso-cilia'ris).

The frontal nerve gives off one branch, the sū'pra trŏch'lear.[2]

The nā'sal nerve divides into two branches :—

An internal branch, and an external branch.

[1] Pronounce lak'rymal.
[2] Pronounce trok'lear.

28

The branches of the nā'sal nerve within the orbit are :—

The gangliŏn'ic branch,
Cĭl'iary branches,
In'fra-trŏch'lear.[3]

The infra-trŏch'lear[3] supplies the lach'rymal sac, carŭn'cula lachrymā'lis, conjunctĭva, and inner angle of the orbit.

[3] Pronounce ch as k.

29

The branches of the superior Măx'illary nerve are divisible into three groups :—

1st group, those given off in the sphē'no-măx'illary fŏssa.

2nd group, those in the infra-ŏr'bĭtal canal.

3rd group, those on the face.

30

SUPERIOR MAX'ILLARY NERVE.

Branches given off in the sphē'no-măx'illary fŏs'sa:—

The ŏr'bĭtal branch, two from Meckel's ganglion, and posterior dental branches.

The ŏr'bĭtal branch divides into two branches: the tĕm'poral and mā'lar.

31

SUPERIOR MAX'ILLARY NERVE.

Branches in the ĭn'fra ŏr'bĭtal canal:—

The middle dental, and Anterior dental.

BRANCHES ON THE FACE.

The mŭs'cular and cutā'neous branches.

32

The fifth nerve spreads out into a semilu'nar ganglion, the Casserian ganglion which divides into three branches; the ophthăl'mic,[4] superior măx'illary, and inferior măx'illary.

The inferior măx'illary is the largest of the three. It divides into two trunks, external and internal.

[4] Pronounee opthal'mic.

33

INFERIOR MAX'ILLARY NERVE.

Branches of the external trunk, 5—the masseter'ic, two tem'poral, the buccal and internal pter'ygoid nerve.

Branches of the internal trunk, 3—the gus'tatory nerve, inferior dental nerve, anterior auricular nerve.

The *inferior dental* nerve gives off one branch, the mȳ'lohȳoide'an nerve.

34

The *inferior dental nerve* divides into two terminal branches :—

The incisive branch and the mental branch. Two branches are given off from the plexus of the *anterior auric'ular nerve* :—

The ascending branch and descending branch.

35

FĀ'CIAL NERVE (pŏr'tio dū'ra).

Intumescen'tia ganglifor'mis, ganglion genicula're, pēs anseri'nus.

The facial nerve divides into two branches :—

The tĕm'poro-fā'cial and cĕr'vĭco-fā'cial.

The fā'cial nerve is also termed nĕr'vus sympathĕt'icus minor.

36

FĀ'CIAL NERVE (pŏr'tio dū'ra).

Branches within the aquedŭc'tus Falō'pĭi :—

The tympăn'ic branch and chŏr'da tym'pani.

After emerging at the stȳ'lo-măs'toid forā'men :—

The posterior auric'ular, stȳ'lo-hȳ'oid, and digăs'tric.

Branches on the face :—

The tĕm'poro-fā'cial, and cĕr'vĭco-fā'cial.

37

The posterior auric'ular divides into an anterior branch, and a posterior branch. The tem'poro-facial gives off a number of branches.

The cĕr'vĭco-facial divides into a number of branches. The au'ditory nerve (por'tio mol'lis) divides into two branches, the cŏch'lear[5] and vestib'ular.

[5] Pronounce kok'lear.

38

GLOSSO-PHARŸNGE'AL NERVE.

Branches.

The tympăn'ic, muscular, pharyngeal, lingual and tonsillit'ic.

Communicating branches with the :—

Facial Pneumogăs'tric, spinal ăc'cessory, and sympathĕt'ic.

Ganglion petrō'sum.

39

PNEUMOGAS'TRIC NERVE.

Branches.

The auric'ular, pharyngeal, superior laryngeal, căr'diac, inferior or recurrent laryngeal, pulmonary anterior, pulmonary posterior, œsophageal, & găs'tric.

Communicating branches with the:—

Fācial, glosso-pharyngeal, spinal ăc'cessory, hypoglŏs'sal, and sympathĕt'ic.

40

The tympan'ic branch (Jacobson's nerve) divides into six branches.

Tympan'ic plexus. Cir'culus tonsila'ris. Pharyngeal plexus. Ganglion of the superior laryngeal branch. External laryngeal branch. Anterior pŭl'monary plexus. Posterior pulmonary plexus. Œsophageal plexus, Nervus vagus cum accesso'rius.

41

HŸPOGLŌS′SAL NERVE.

Branches.

The descendens nō′ni, thȳ′ro-hȳoide′an branch, communicating filaments with the gus′tatory nerve.

Communicating branches with the—

Pneumogās′tric, spinal ăc′cessory, first and second cĕr′vĭcal nerves and sympathĕt′ic.

42

SPINAL NERVES.

Thirty-one Pairs.

They are divided into—

Cĕr′vical	..	8 pairs
Dŏr′sal	..	12 pairs
Lŭm′bar	..	5 pairs
Săc′ral	..	6 pairs

The first cervical nerve is the sub-occĭp′ital; the lumbar and sacral nerves form the large assemblage of nerves at the termination of the cord, called cau′da equi′na.

43

CERVICAL NERVES.

The *anterior branches* of the four upper cĕr′vĭcal nerves form the cĕr′vĭcal plexus.

The *posterior branches* of the four upper cĕr′vĭcal nerves form the posterior cĕr′vĭcal plexus.

The *anterior branches* of the four nferior cĕr′vĭcal nerves, together with the first dorsal, form the brā′chial plexus.

44

CERVICAL PLEXUS.

Superficial ascending branches:—

The superficiā′lis cŏl′lī, Auriculā′ris măg′nus, and Occipitā′lis minor.

Superficial descending branches:—

Acromiā′lēs and Claviculā′rēs.

Deep branches:—

Communicatingbranches, Muscular branches, Communicans nō′ni, and Phrĕn′ic nerve.

45

POSTERIOR CERVICAL PLEXUS.

Branches.

The mŭs′culo-cutā′neous, and occipitā′lis major.

BRĂCHIAL OR AX′ILLARY PLEXUS.

Hŭ′meral Branches.

The superior muscular, short thōrā′cic,[6] long thōrā′cic,[6] sūpra-scă-p′ular, subscăp′ular, and inferior muscular.

[6] Pronounce thorassic.

46

BRA′CHIAL′ OR AX′ILLARY PLEXUS.

Descending branches.

External cutā′neous, internal cutā′neous, lesser internal cutā′neous (or nerve of Wrisberg), me′dian branch, ul′nar branch, musculo-spiral, and circumflex.

[7] Pronounce brak′ial.

47

The superior muscular nerves are a subcla′vian branch, a rhom′boid branch, and an angular branch. The short thō-rā′cic nerves (anterior), two in number, are di visible into an *anterior* and a *posterior* branch. The external cutā′neous nerve divides into an *external* and an *internal* branch.

48

MĒ′DIAN NERVE.

Branches.

The muscular, anterior interŏs′seous, superfi-cial palmar, and dĭ′gĭtal.

ULNAR NERVE.

Branches.

Muscular in the upper arm, articular, muscu-lar in the fore-arm, anastomŏt′ic, dorsal branch, superficial pal-mar, deep palmar.

49

Anastomŏtic branch (cutā′neous palmā′ris ulnā′ris).

MŬS′CULO SPIRAL NERVE.

Branches.

The mŭs′cular, spī′ral cutā′neous, rā′dial and posterior interŏs′seous. The rā′dial nerve divides into an internal and external branch.

CIRCUMFLEX NERVE.

Branches.

Muscular and cutā′neous.

50

DŎR′SAL NERVES.

Each dŏr′sal nerve divides into two branches, a dŏrsal branch and the true intercŏs′tal nerve.

DŎR′SAL BRANCHES.

Each dŏr′sal branch divides into an anterior or mŭs′cular branch, and a posterior or mŭscŭlo-cutā′neous branch.

51

INTERCŎS′TAL NERVES.

Branches of each nerve: A muscular twig and a cutā′neous branch.

The first intercŏstal nerve has no cutā′neous branch. The cutā′neous branches of the second and third intercŏs′tal nerves are named, intercŏs′to-hu′meral nerves.

52

THE FIRST INTERCOSTO-HUMERAL NERVE, divides into an internal branch and an external branch.

The SECOND INTERCOSTO-HUMERAL NERVE divides into fīl′aments.

The cutā′neous branch of the last dorsal nerve (nervum clū′nium superior antī′cus) is remarkable for its large size.

53

LUMBAR NERVES.

Five Pairs.

Anterior branches and posterior branches. Each *anterior branch* divides into a superior branch and an inferior branch. Each *posterior branch* divides into an internal and an external branch. The external branches of the three lower lumbar nerves (nervi clū'nium superio'res postī'ci).

54

LUMBAR PLEXUS.

Branches.

Mŭs'culo-cutā'neous, external cutā'neous, gĕn'ito-cru'ral, cru'ral, obturā'tor, lumbo-săc'ral.

The mŭ'scŭlo-cutā'neous nerves are two in number: — The superior mŭs'cŭlo-cutā'neous (ĭlio-scrō'tal, ĭlio-hўpogăs'tric), and inferior mŭs'cŭlo-cutā'neous (ĭ'lĭo-ĭn'guinal).

55

The superior mŭs'cŭlocū'tā'neous nerve divides into two branches: abdom'inal and scro'tal.

The external cutā'neous nerve (ĭn'guino-cutā'neous) divides into two branches, *posterior* and *anterior*. The anterior branch divides into two branches.

56

The Gĕn'ito-crū'ral nerve divides into a gĕn'ital branch (spermăt'icus seu pudĕn'dus externus) and a crū'ral branch (lŭm'bo-ĭnguĭnā'lis).

CRURAL, OR FEM'ORAL NERVE.

Branches.

Cutā'neous nerves (middle cutā'neous), muscular branches, branch to the fem'oral sheath.

57

CRU'RAL OR FEM'ORAL NERVE.

Branches.

Short saphē'nous (cutā'neous internus), long saphē'nous, (cutā'neous internus longus).

The long saphē'nous gives off a fem'oral cutā'neous branch, tĭb'ial cutā'neous branch, an articular branch, and an anterior cutā'neous branch.

58

The OBTURA'TOR NERVE divides into 4 branches: 3 anterior, and a posterior branch. The SAC'RAL NERVES are posterior sacral, and anterior sacral.

SAC'RAL PLEXUS.

Internal Branches.

Vis'ceral and mus'cular.

External Branches.

Mŭs'cular, glute'al, internal pū'dic, lesser ĭschiăt'ic, greater ĭschiăt'ic.[8]

[8] Pronounce Iskiatic.

59

The GLUTE'AL NERVE divides into a superior and an inferior branch.

The INTERNAL PU'DIC divides into a superior nerve (dorsā'lis pē'nis) and an inferior or perĭne'al nerve, which gives off three principal branches:—

External perĭne'al, superficial perĭne'al, and bulbo-urē'thral branch.

60

The LESSER ISCHIAT'IC[9] NERVE divides into muscular branches (inferior glute'al) and cutā'neous branches.

The perĭne'al cutā'neous nerve (pudendā'lis longus inferior), divides into an internal and an external branch.

The middle posterior cutā'neous nerve.

[9] Pronounce Iskiatic.

61

The GREAT ISCHIAT'IC NERVE is the largest nervous cord in the body, it divides into two large terminal branches, the popliteal and perōne'al.

The branches of the great ĭschĭăt'ic nerve, before its division, are *muscular* and *articular*.

62

POPLIT'EAL NERVE.

Branches.

The muscular or sū'ral, the articular nerve, the communicans poplĭte'ī (communicans tibiā'lis).

The communicans perōne'ī and the communicans poplĭte'ī, constitute the external saphē'nous nerve.

63

POSTERIOR TIB'IAL NERVE.

Branches.

Three or four mŭs'cular twigs; the branch to the flexor lŏn'gus pŏllicis, accompanies the fī'bular artery; one or two filaments, and two or three plantar cutā'neous branches.

64

The INTERNAL PLANTAR NERVE divides into three digital branches. In its course it gives off cutā'neous branches, muscular branches, a digital branch, and articular branches.

PERŌNE'AL NERVE.

The branches previous to its division, are the communicans perōne'ī, cutā'neous, articular, and muscular.

65

The PERŌNE'AL NERVE divides into 2 branches: the anterior tĭb'ial and mŭs'culo-cutā'neous.

The mŭs'culo-cutā'neous divides into two perō-ne'al cutā'neous nerves.

The anterior tĭb'ial nerve gives off muscular branches and a tar'sal branch.

66

SYMPATHET'IC NERVES.

The sympathetic system consists of a series of găng'lĭa extending along each side of the ver'tebral column from the head to the cŏc'cyx, communicating with all the other nerves of the body, and distributing branches to all the internal organs and vis'cera.

67

The branches of distribution accompany the arteries which supply the different organs and form communications around them, which are called *plex'uses*, and take the name of the artery with which they are associated.

68

There are five sympathĕt'ic găng'lĭa in the head, three sympathĕt'ic găng'lĭa in the neck, twelve sympathĕt'ic găng'lĭa in the dŏr'sal region, four sympathĕt'ic găng'lĭa in the lumbar region, and four or five sympathĕt'ic găng'lĭa in the săc'ral region.

69

FIVE CRĀ'NIAL GĂNG'LĬA.

Ganglion of Rī'bēs, cĭl'iary or lentĭc'ular ganglion, sphē'no-păl'ătĭne or Meckel's ganglion, otic or Arnold's ganglion, sub – măx'illary ganglion.

CĬL'ĬARY GANGLION.

Branches of distribution:—
The ciliary branches.

Branches of communication:—
Three—the long root, short root, and sympathĕt'ĭc root.

70

SPHĒ'NO - PALATINE GANGLION.

The branches of this ganglion are divisible into four groups:—
The ascending branches, descending branches, internal branches, and posterior branches.

Branches of distribution:—
The internal and the descending.

71

SPHĒ'NO-PAL'ATINE GANGLION

Branches of distribution:—
The ***internal*** branches are the nā'sal or sphē'no – păl'ătine nerves, four or five in number, and the nā'so-păl'ătine nerve. Nā'so-păl ătine ganglion.
The ***descending branches*** are the anterior păl'ătine nerve, middle păl'ă tine nerve, and posterior păl'ătine nerve.

72

SPHĒ'NO - PAL'ATINE GANGLION.

Branches of communication:—
The ascending and the posterior. The *posterior branch* is the Vidian or pter'ygoid nerve.

BRANCHES OF THE O'TIC GANGLION.

Seven branches; 2 branches of distribution, and 5 branches of communication.

SUB-MAX'ILLARY GANG'LION.

Branches of distribution, branches of communication.

73

Carŏt'id plexus,
Carŏt'id ganglion,
Cav'ernous plexus.

CERVICAL GANGLIA.

Superior cervical ganglion,
Middle cervical ganglion,
Inferior cervical ganglion.

SUPERIOR CERVICAL GANGLION.

Its branches are divisible into superior, inferior, external, internal, and anterior.

The superior branch (carŏt'id nerve) divides into two branches.

74

SUPERIOR CERVICAL GANGLION.

The *external branches* are numerous. The *internal branches* are three in number:—The pharyngē'al, laryngē'al, and superior căr'diac nerve, or nĕr'vus superficiā'lis cordis. The *anterior branches* are called nĕr'vī mŏl'lēs, and nĕr'vī subrū'fī.

75

MIDDLE CERVICAL GANGLION.

(Thy'roid ganglion).

Superior branches, inferior branches, external branches, internal branches; *middle căr'diac nerve.*

INFERIOR CERVICAL GANGLION.

(vĕr'tebral ganglion.)

Its branches are superior, inferior, and external; the internal branch is the inferior căr'diac nerve.

76

CAR'DIAC NERVES.

Superior car'diac nerve (nervus superficiā'lis cordis).

Middle car'diac nerve (nervus cardī'acus magnus).

Inferior car'diac nerve (nervus cardī'acus minor).

Car'diac ganglion, great car'diac plexus, anterior car'diac plexus, and posterior car'diac plexus, which divides into two sets of branches; these constitute the posterior cŏr'onary plexus.

77

THORĂ'CIC GANGLIA.

Their branches are superior, inferior, external, and internal. The internal branches of the five upper ganglia are pul'monary, œsophage'al, and aŏr'tic.

The branches of the lower găng'lia are aŏr'tic, and several large cords which unite to form the two splănch'nic[1] nerves.

[1] Pronounce splanknic.

78

The great splănch'nic nerve terminates in the *semilunar ganglion;* the lesser splănch'nic nerve descends to join the renal plexus.

The *semilunar ganglion* is situated by the side of the cœlic axis, and communicates with the ganglion of the opposite side, so as to form a gangliform circle, from which branches pass off like rays from a centre.

79

The *semilunar ganglion.*

SOLAR PLEXUS.

Plexuses derived from the so'lar plexus:—Phrĕn'ic plexuses, gas'tric plexuses, hepat'ic plexuses, splen'ic plexus, su'pra-re'nal plexuses, re'nal plexuses, superior mesenter'ic plexus, spermat'ic plexuses, inferior mesenter'ic plexus.

80

LUMBAR GANG'LIA.

Superior, inferior, external, and internal branches. The internal branches consist of two sets: the upper, form the lumber aortic plexus, and the lower, form the hypogas'tric plexus.

SAC'RAL GANGLIA.

Branches superior, inferior, external, and internal. *Ganglion impar* or a'zygos.

ORGANS OF SENSE.

1

The Organs of Sense are five in number:—

The apparatus of SMELL, SIGHT, HEARING, and TASTE are situated within the head; and the organ of TOUCH is resident in the skin, and distributed over the surface of the body.

2

The ORGAN OF SMELL consists essentially of two parts:—External part, the nose; internal part, the nā′sal fŏs′sæ. The septum between the openings of the nostrils is called the colŭm′na; the entrance of the nā′sal fŏs′sæ is guarded by a number of stiff hairs (vĭbrĭs′sæ).

3

The anatomical elements of which the Nose is composed, are—

The integ′ument,
Muscles,
Bones,
Fibro-cartilages,
Mucous membrane,
Vessels and nerves.

4

The integument forming the tip (lŏb′ulus), and the wings (ā′læ) of the nose, is furnished with an abundance of sebĭp′arous follicles, which, by their oily secretion, protect the extremity of the nose in excessive alternations of the temperature.

5

Fibro-Cartilages of the Nose:—

Five—The fibro-cartilage of the septum, two lateral fibro-cartilages, and two alar fibro-cartilages.

Arteries of the Nose:— The laterā'lis nā'sī and nasa'lis sep'tī.

Nerves of the Nose:— The facial, infra-orbital, and nasal branch of the ophthăl'mic.

6

NĀ'SAL FŎS'SÆ.

Three projecting processes, termed spongy bones: the two superior belong to the ē'thmoid bone, the inferior is a separate bone. Superior mea'tus, middle mea'tus, inferior mea'tus.

The mucous membrane of the nā'sal fŏs'sæ is called pitū'itary or Schneidē'rian.

7

Openings in the Nā'sal Fŏs'sæ:—In the *superior meā'tus* openings of the sphenoidal and posterior ethmoidal cells. *In the middle meā'tus*, openings of the anterior ethmoidal cells of the frontal sinuses, and of the antrum maxillā're. *In the inferior meā'tus* is the termination of the nasal duct.

8

ARTERIES OF THE NĀ'SAL FŎS'SÆ: — The anterior and posterior ethmoidal, sphē'no-păl'atine, and pter'y-go-păl'atine.

NERVES OF THE NĀ'SAL FŎS'SÆ:—Olfac'tory, sphē'no-păl'atine branches from Meckel's ganglion, and nā'sal branch of the ophthal'mic nerve. The ultimate filaments of the olfac'tory nerve terminate in papĭl'læ.

9

ORGAN OF SIGHT — THE EYE.

The form of the eye-ball is that of a sphere of about one inch in diameter.

The globe of the eye is composed of *tunics*, and of refracting mē′dia, called humours.

10

TUNICS OF THE GLOBE OF THE EYE, 3; 1, the sclerŏt′ic[1] and cŏr′nea; 2, the chō′roid, iris and cĭl′ĭary processes; 3, the ret′ina and zonula cilia′ris (zō′nula of Zinn).

HUMOURS OF THE GLOBE OF THE EYE, 3; 1, the ăq′ueous; 2, the crўs′tallĭne (or lens); and 3, the vĭt′reous.

[1] Pronounce sklerot′ic.

11

FIRST TUNIC. SCLERŎT′IC AND COR′NEA.

Tū′nica albugĭn′ea, conjunctĭ′va, crĭ′briform laměl′la, (lăm′ina crĭbrō′sa), porus ōp′ticus.

The cŏr′nea is composed of 4 layers: of the conjunctī′va, of the cŏr′nea proper, of the cŏr′nea elăs′tica, and the lining membrane of the anteterior chamber of the eye-ball.

12

SECOND TUNIC OF THE EYE-BALL.

Formed by the chō′roid,[2] cĭl′iary ligament and ĭ′ris.

The chō′roid[2] membrane is composed of three layers; an external or venous layer, which consists principally of veins arranged in a peculiar manner (vē′næ vortĭcō′sæ), a middle or arterial layer, (tū′nica Ruyschiā′na), and an internal layer (membrā′na pigmĕn′ti.

[2] Pronounce ko′roid.

13

Within the cĭl'iary ligament is the cĭl'iary canal or canal of Fontā'na. The ī'ris is pierced by a circular opening called the *pupil*. The ī'ris is composed of two layers; the anterior or muscular layer, consisting of radiating fibres and circular fibres. The posterior layer is of a deep purple tint, and is thence named ū'vea.

14

SECOND TUNIC OF THE EYE-BALL.

The ciliary processes consist of a number of triangular folds, about sixty in number. The ciliary processes are covered with a thick layer of pigmĕn'tum nī'grum.

THIRD TUNIC OF THE EYE-BALL.

The ret'ina is composed of three layers: *external* or Jacob's membrane, *middle* or nervous membrane, *internal* or vascular membrane.

15

The rēt'ina is prolonged forwards to the lens by the zō'nula ciliā'ris.

In the centre of the posterior part of the globe of the eye, the ret'ina presents a circular spot, which is called the *forā'men of Soemmering*, it is surrounded by a yellow halo, the *lim'bus lu'teus*.

16

Anterior chamber of the eye, posterior chamber of the eye, secreting membrane of the aqueous humour, the hȳ'aloid, the capsule of the lens, liquor Morgā'gni, canal of Petit.[3] The *vessels* of the globe of the eye are the long and short, and anterior ciliary arteries, and the artēria centrā'lis rēt'inæ.

[3] Pronounce Pĕ'tee.

17

The *Sclerŏt'ic* is a tunic of protection, the *cor'nea* is a medium for the transmission of light, the *chŏ'roid* supports the vessels destined for the nutrition of the eye, and by its pigmentum nī'grum absorbs all loose & scattered rays that might confuse the image impressed upon the rĕt'ĭna. The ī'ris regulates the quantity of light admitted through the pupil.

18

NERVES OF THE EYEBALL :—The ŏp'tic, two cĭl'iary nerves from the nā'sal branch of the ophthăl'mic, and the cĭl'iary nerves from the cĭl'iary ganglion.

The eyelids are two văl'vular layers placed in front of the eye. When drawn open, they leave between them an ellĭp'tical space, the angles of which are called căn'thī.

19

APPENDAGES OF THE EYE (tutā'mina ŏc'ulī).

The eyebrows (supercĭl'ia), eyelids (păl'pebræ), eyelashes (cĭl'ĭa), conjunctī'va, carŭn'cula lachrymā'lis, and the lăch'rymal apparā'tus. Plī'ca semilunā'ris.

20

EYELIDS (păl'pebræ).

Căn'thī, lā'cus lachrўmā'lis, lachrymal papĭl'lă or tubercle, pŭnc'tum lachrymā'le. The eyelids have entering into their structure, integument, orbĭculā'ris muscle, tarsal cartilages, Meibomian glands, and conjunctī'va. The nerves of the eyelids are branches of the 5th and of the facial.

21

The LACHRYMAL[4] APPARATUS consists of the lachrymal gland with its excrē′tory duct; the puncta lachrymā′lia, lachrymal canals, lachrymal sac, and nā′sal duct.

The eyelids are supplied *internally* with arteries from the ophthăl′mic artery and externally from the facial and transverse facial arteries.

[4] Pronounce lak′rymal.

22

The ORGAN OF HEARING is composed of three parts:—The external ear, the middle ear or tym′panum, and the internal ear or labyrinth.

The *external ear* consists of two portions: the pinna and meā′tus auditō′rius.

In the substance of the meā′tus auditō′rius are a number of cerū′minous glands, which secrete the wax of the ear.

23

THE DIFFERENT FOLDS AND HOLLOWS ON THE SURFACE OF THE PINNA.

The hĕl′ix, an′tihĕl′ix, trā′gus, antĭt′răgus, lŏb′ulus, fŏs′sa innominā′ta, scă′phoid fŏs′sa, and cŏn′cha,[5] which opens directly into the meā′tus auditō′rius.

[5] Pronounce cŏnka.

24

The Pĭn′nă is composed of integument, fibro-cartilage, ligaments, and muscles.

PROPER MUSCLES OF THE PĬN′NA.

The major hĕl′icis, minor hĕl′icis, trā′gĭcus, an′tĭtrā′gĭcus, transversus aurĭc′ulæ, and the oblī′quus auris and contractor meā′tûs or trā′go-hĕl′icus.

25

MIDDLE EAR OR TYM′PANUM.

The membrā′na tym′pani is composed of three layers:—An *external* (epiděr′mal), a *middle layer* (fibrous and muscular), *an internal layer* (mucous).

MUSCLES OF THE TYM′PANUM.

Tensor tym′panī, laxā′tor tym′pani, laxā′tor tym′panī minor, stapē′dius.

26

THE FIVE LARGE OPENINGS IN THE TYM′PANUM.

Meā′tus auditō′rius,
Fenes′tra ova′lis,
Fenes′tra rotun′da,
Mas′toid cells,
Eustachian tube.

THE FIVE SMALL OPENINGS.

Entrance of the chorda tym′pani, exit of the chorda tym′pani, opening for the laxator tym′pani, for the tensor tym′pani, for the stapē′dius.

27

The forā′mina and processes of the tym′panum, four groups.—1st. In the internal wall is the meā′tus auditō′rius, closed by the membrā′na tym′pani. 2nd. In the inner wall: opening for the tensor tym′pani, ridge of the aquæductus Fallō′pīī, fenestra ovā′lis, promontory, grooves for Jacobson's nerve, fenes′tra rotun′da.

28

FORA′MINA AND PROCESSES OF THE TYM′PANUM.

3rd group:—In the posterior wall are the opening of the mastoid cells, pyramid, opening for the stapē′dius, opening for Jacobson's nerve, apertū′ra chŏr′dæ[6] (entrance).

[6] Pronounce kor′dee.

29

FORA′MINA AND PROCESSES OF THE TYM′PANUM.

4th group:—In the anterior wall are the Eustachian tube, fissū′ra Glasē′rīi, or gle′noid fissure, opening for the laxator tўm′pani, apertū′ra chordæ (exit).

The INTERNAL EAR is called labyrinth; it is divisible into the vestibule, semicircular canals and cochlea.[7]

[7] Pronounce cok′lea.

30

INTERNAL EAR.

VESTIBULE, *large openings*, 7: The fenes′tra ovā′lis, scālă vestīb′ulī and 5 openings of the 3 semicircular canals.

Small openings: — The aquæduc′tus vestīb′ulī,[8] openings for small arteries, openings for branches of the au′ditory nerve.

[8] Canal of *Cotun′nius.*

31

THE THREE SEMICIRCULAR CANALS.

The *superior* or perpendicular canal (cănā′lis semicircŭlā′ris verticā′lis superior), the middle or oblĭque′ canal (canā′lis semicircŭlā′ris verticā′lis posterior), the inferior or horizontal canal (canā′lis semicirculā′ris horizontā′lis).

32

CŎCH′LEA.[9]

Central axis or modī′olus, trăc′tus spīrā′lis foraminulĕn′tus, tū′bulus centrā′lis modī′olī, artē′ria centrā′lis modī′olī, zō′nula os′sea lăm′inæ spīrā′lis, hăm′ulus lăm′inæ spīrā′lis, hĕl′ico trē′ma, ă′quă labyrĭn′thī (lī′quor Cotun′nĭī).

[9] Pronounce cok′lea.

33

The MEM′BRANOUS LABYRINTH consists of a small elongated sac: săc′culus commū′nis, of three semicircular mem′branous canals, and of a small round sac, săc′culus prō′prius. The membranous labyrinth is filled with a limpid fluid (the lı′quor Scarpæ), and contains two small calca′reous masses, the ōtocŏn′ites.

34

ORGAN OF TASTE.

The Tongue

Is composed of muscular fibres; its surface is covered by a dense layer analagous to the cŏr′ium of the skin, which gives support to papıl′læ.

PAPIL′LÆ of the TONGUE.

Papıl′læ circumvallā′tæ, papıl′læ cō′nicæ, papıl′læ filifor′mes, papıl′læ fungifor′mes.

35

The tongue is connected, posteriorly, with the ōs hȳoı′des, and to the ep″iglot′tis; on either side, with the lower jaw.

Fræ′nă epiglŏt′tidıs, frænum lın′guæ. The papıl′læ circumvallā′tæ are also called papıl′læ calyciför′mes.

36

ORGAN OF TOUCH.

The skin is composed essentially of two layers, the *der′ma* & *epiderma*. The derma, or cū′tis, is divided into a deep strā′tum or cŏr′ium and a superficial or păp′illary layer.

DER′MA OR CU′TIS.

Arē′olo-fi′brous tissue, elastic fi′brous tissue, contractile fi′brous tissue, blood-vessels, lymphatic vessels and nerves.

37

Cu'tis anserī'na.

EPĬDER'MA OR CU'TICLE (scarf skin),
Divisible into 2 layers, external and internal; the internal layer is the rē'te-mucō'sum.

APPENDAGES OF THE SKIN.

The nails, hairs, sebĭp'arous glands, perspī'ratory glands and ducts.

THE VIS′CERA.

1

THE VIS′CERA.

That part of the science of anatomy which treats of the viscera is named splanchnŏl′ogy.[1] The viscera of the human body are situated in the three great internal cavities:—

The crā′nio-spinal,
The thō′rax, and
The abdō′men.

[1] Pronounce splanknol′ogy.

2

VIS′CERA OF THE CRA′NIO-SPINAL CAVITY.

The brain and spinal cord, with the principal organs of sense.

VIS′CERA OF THE THŌ′RAX.

The heart in its pericăr′dium, with the great vessels, the lungs with their serous covering, the pleuræ, the œsoph′agus and some important nerves.

3

VIS′CERA OF THE ABDŌ′MEN.

VIS′CERA WHICH PROPERLY BELONG TO THE ABDŌ′MEN:—Alimentary canal, liver, pan′creas, spleen, kidneys, and supra-renal capsules.

VISCERA OF THE PEL′VIS.

The bladder and internal organs of generation.

4

The HEART consists of two auricles and two ventricles. The right auricle is larger than the left, and is divided into a principal cavity, or sinus, and an appendix auric′ulæ.

INTERIOR OF THE SINUS.

Five openings, two valves, two relicts of fœtal structure, two peculiarities in the proper structure of the auricle.

5

FIVE OPENINGS:—The superior cā'va, inferior cā'va, cor'onary vein, forā'mina Thesbe'sii, auric'ulo-ventric'ular opening.

TWO VALVES:—Eusta'chian valve, cor'onary valve.

RELICTS OF FŒTAL STRUCTURE:—An'nulus ovā'lis, fossa ova'lis.

STRUCTURE OF THE AURICLE:—Tubĕr'culum Low'erī, mŭs'cŭli pectinā'ti.

6

RIGHT VENTRICLE OF THE HEART.

Auric'ulo - ventricular opening, opening of the pulmonary artery, tricŭs'pid valves, semilū'nar valves, chordæ tendin'eæ, colŭm'næ căr'neæ.

SEMILUNAR VALVES.

Corpus arăn'tĭi, sinus aor'tici (sinuses of Valsalva).

7

The active valves are the tricŭs'pid and mi'tral; the passive valves are the semilū'nar and cŏr'onary. The valves consist of *curtains*, *cords*, and *columns*.

LEFT VENTRICLE.

Auric'ulo - ventricular opening, aortic opening, mi'tral valves, semilunar valves, chordæ tendin'eæ, colŭm'næ căr'neæ.

8

THE LEFT AURICLE OF THE HEART is smaller than the right auricle and thicker; it presents 5 openings, 4 pulmonary veins, the auric'ulo - ventricular opening, and the mŭs'cŭli pectinati. The mŭs'cŭli pectinati are situated only in the appendix auric'ulæ. There is no fossa ovā'lis in the left auricle.

9

LEFT VENTRICLE.

Belonging to semilunar valves; the cŏr′porā Aran′tĭī. Sinus āŏr′tĭcī (sinuses of Valsalva).

STRUCTURE OF THE HEART.

Fibres of the ventricles, three layers: superficial, middle, and internal. Short or apĭ′cial band, long or ba′sial band.

10

STRUCTURE OF THE HEART.

Fibres of the auricles, two layers: external layer, internal layer; superior band, anterior band, posterior band. The septum auricŭlā′rum has four sets of fibres entering into its formation.

11

ORGANS OF RESPIRATION.

The two lungs with their air tube, the trā′chea,[2] to the upper part of which is adapted an apparatus of cartilages constituting the organ of voice or lăr′ynx.

The lăr′ynx is composed of cartilages, ligaments, nerves, muscles, vessels, and mucous membrane.

[2] Pronounce trā′kea.

12

THE LARYNX.

Its cartilages are—The thў′roid, crĭ′coid, two arўtē′noid, two cunē′iform, and the ep″iglot′tis.

THY′ROID CARTILAGE: Pō′mum Ad′amī.

CRĬ′COID CARTILAGE: Glē′noid cavity.

ARYTE′NOID CARTILAGES: Cornĭc′ula larўn′gis (capĭt′ula Santorī′ni).

13

LIGAMENTS OF THE LAR′YNX.

First Group.

Ligaments which connect the thȳ′roid with the ōs hyoi′dēs : two thȳ′ro-hyoide′an ligaments (in each of which there is a sĕs′amoid bone or cartilage), and the thȳ′rohyoide′an membrane.

14

LIGAMENTS OF THE LAR′YNX.

Second Group.

Ligaments connecting the thȳ′roid cartilage to the crĭ′coid cartilage : two capsular ligaments, with their sȳnō′vial membranes, and the crĭ′co-thȳroide′an membrane (middle crĭ′co-thȳroide′an ligament and lateral crĭ′co-thȳroide′an ligament).

15

LIGAMENTS OF THE LAR′YNX.

Third Group.

Ligaments of the arȳte′noid cartilages : two capsular ligaments, and sȳnō′vial membranes, superior thȳ′ro-arȳte′noid ligaments, inferior thȳ′ro-arȳte′noid ligaments or chŏr′dæ vocā′lēs. The space between the two chŏr′dæ vocā′lēs is the glŏt′tis or rĭ′ma glŏt′tidis.

16

LIGAMENTS OF THE LAR′YNX.

Fourth Group.

Ligaments of the ep″iglŏt′tis, five : three glosso-ep″iglŏt′tic ligaments (fræ′nă epiglŏt′tidis), the hȳo-ep″iglŏt′tic ligament, and the thȳ′ro-ep″iglŏt′tic ligament.

17

MUSCLES
OF THE LAR′YNX.

Five larger and three smaller. The 5 larger are the muscles of the chŏr′dæ vocā′lēs and rī′ma glŏt′tidis: the crī′co-thy′roid, crī′co-arytenoidē′us postī′cus, crī′co-arytenoidē′us laterā′lis, thȳ′ro-arytenoidē′us, and arytenoidē′us.

18

MUSCLES
OF THE LAR′YNX.

The three smaller are the muscles of the ep″iglŏt′tis: the thyro-epiglottĭde′us, aryte′no-epiglottĭde′us superior, aryte′no-epiglottĭde′us inferior. In the ventricles of the lăr′ynx the mucous membrane forms a cæcal pouch of variable size: the sac′culus lărȳn′gis.

19

The *Trā′cheă*[3] (air tube) divides into the right brŏn′chus[4] and left brŏn′chus;[4] it is composed of fī′bro-cartĭlă′gĭnous rings, fibrous membrane, mucous membrane, longitudinal elastic fibres, muscular fibres and glands.

[3] Pronounce trā′kea.
[4] Pronounce bronk′us.

20

The THY′ROID GLAND is situated upon the trā′cheă;[5] it consists of two lobes, placed one on each side of the trā′cheă.[5] It bears no part in the function of respiration. It is the seat of an enlargement called brŏn′chocele,[6] goitre,[7] or the Derbyshire neck.

[5] Pronounce trāk′ea.
[6] Pronounce bronk′ocele.
[7] Pronounce goy′tur.

21

The *Lungs* are situated, one on each side of the chest, and separated from each other by the heart and by a mem'branous partition, the mediăstī'num. The right lung is larger than the left, and shorter; the left lung is smaller than the right, but longer. Each lung is retained in its place by its root.

22

The root of each lung is formed by the pŭl'monary artery, pŭl'monary veins, and brŏn'chial[s] tubes, together with the bronchial vessels and pŭl'monary plexuses of nerves.

LARGE VESSELS OF THE ROOT OF EACH LUNG.

The pŭl'monary veins, pŭl'monary artery, and brŏn'chus.

[s] Pronounce bronk'ial.

23

THE PLEURÆ.

Pleura pulmonā'lis,

Pleura costā'lis.

THE MEDIASTI'NUM.

Anterior mediăstī'num,

Middle mediăstī'num,

Posterior mediăstī'num.

24

THE ANTERIOR MEDIASTI'NUM.

A quantity of loose arē'olar tissue, lymphat'ic vessels passing upwards from the liver, the remains of the thȳ'mus gland, the origins of the stĕr'no-hȳ'oid, stĕr'no thȳ'roid and triangŭlā'ris stĕr'ni muscles, and the internal măm'mary vessels of the left side.

25

The MIDDLE MEDIASTI'NUM contains the heart, the ascending aŏr'tā, superior vē'nă cā'vă, bīfurcā'tion of the trā'cheă, pul'monary arteries and veins, and the phrĕn'ic nerves.

The ABDŌ'MEN contains the alimentary canal, the organs subservient to digestion: the liver, pan'creas, and spleen. The organs of excre'tion: the kidneys, with the sū'pra-rēnal cap'sules.

26

The POSTERIOR MEDIASTI'NUM contains the descending aŏr'tă, greater & lesser ā'zўgos veins, superior intercostal vein, thō'ră'cic[9] duct, œsŏph'agus and pneumogăs'tric nerves, and the great splăn'chnic[1] nerves.

[9] Pronounce thoras'sik.

[1] Pronounce splank'nik.

27

ABDŌ'MEN.

The middle region of the upper zone is called epigăs'tric, the two lateral regions of the upper zone are called hўpochŏn'drĭac.[2] The middle region of the middle zone is the umbĭl'ĭcal; the two lateral regions of the middle zone are the lumbar regions.

[2] Pronounce hўpokon'driac.

28

ABDŌ'MEN.

The middle region of the inferior zone is the hўpogăs'tric, the two lateral regions of the inferior zone are the ĭl'iac regions. The term ĭn'guĭnal region is employed in reference to the vicinity of Poupart's ligament.

29

ABDŌ′MEN.

Upper Zone.

The liver, extending from right to left; the stomach and spleen on the left; the păn′creas and duodē′num behind.

Inferior Zone.

Lower part of the omĕn′tum and small intestines, the cæ′cum, ascending colon, descending colon, with the sĭg′moid flexure, and ū′reters.

30

ABDŌ′MEN.

Middle Zone.

The transverse portion of the colon, with the upper part of the ascending and descending colon, the omĕn′tum, small intestines, and mĕs′entery; and, behind, the kidneys and sū′pra-rē′nal capsules.

31

The PER′ITONE″UM is a serous membrane. The viscera which are invested by the per′itone″um in its course from above downwards, are the liver, stomach, transverse colon, small intestines, and pĕl′vic viscera.

32

FOLDS OF THE PER′ITONE U M.

Broad, cŏr′onary, and lateral ligaments, lesser omĕn′tum, greater omĕn′tum, transverse mĕs′o - colon, mĕs′entery, mĕs′o - rectum, recto-vĕs′ĭcal fold, false ligaments of the bladder; and in the female, broad ligaments of the ū′terus.

33

The LESSER OMEN'TUM contains, between its layers, the hēpăt'ic artery, dŭc'tus commū'nis cholĕ'dochus,[3] portal vein, hēpăt'ic plexus of nerves and lymphatics.

FORA'MEN OF WINSLOW.

Its boundaries, in *front*, the right border of the lesser omĕn'tum; *behind*, the dī'aphragm; *below*, the hēpăt'ic artery; *above*, the lō'bus Spigĕl'ĭi.

[3] Pronounce kolĕ'dokus.

34

PER'ITONE''UM.

Appĕn'dicēs epiplōï'cæ, gastro-phrĕn'ic ligament, gastro-splĕn'ic ligament, ascending mĕs'o-colon, descending mĕs'o-colon.

TRUE SEROUS MEMBRANES.

The arăch'noid,[4] pericăr'dium, pleu'ræ, and tū'nicæ vaginā'lēs.

SEROUS MEMBRANES.

The sȳnō'vial membranes and bur'sæ.

[4] Pronounce arak'noid.

35

The ALIMENTARY CANAL extends from the mouth to the ā'nus: it is divided into the mouth, phă'rȳnx, œsŏph'agus, stomach.

Small intestine { duodē'num, jejū'num, ĭ'leum.

Large intestine { cæ'cum, cō'lon, rĕc'tum.

36

BOUNDARIES OF THE MOUTH.

The lips, internal surface of the cheeks, hard palate, teeth of the upper jaw, tongue, mucous membrane stretched between the arch of the lower jaw and under surface of the tongue, teeth of the lower jaw, soft palate, and fauces.

37

SOFT PALATE.

(Vē′lum pĕn′dulum palā′tī.) The ū′vulă, anterior pillar, posterior pillar, tonsils (amȳg′dalæ), isthmus of the fauces.

SAL′IVARY GLANDS.

The excre′tory ducts of three pairs of sal′ivary glands communicate with the mouth; the parŏt′id, submăx′illary, and sublĭn′gual.

38

The parŏt′id gland (Steno′s duct) and sō′cia parŏt′ĭdis.

PHAR′YNX.

The 7 forā′mina opening into the anterior part of it, are the 2 posterior nā′rēs, 2 Eustachian tubes, the mouth, lar′ȳnx, and œsŏph′agus.[5]

[5] Pronounce œsof′agus.

39

The *Stomach* is an expansion of the alimentary canal; it is divided into a greater or splĕn′ic end, a lesser or pȳlor′ic end; a lesser curvature above, greater curvature below; an anterior surface, posterior surface, a cardiac orifice, a pȳlor′ic orifice.

40

The SMALL INTESTINE is about twenty-five feet long — divisible into three portions: duodē′num, jejū′num, and ĭ′leum.

The LARGE INTESTINE is about five feet in length—divisible into the cæ′cum, cō′lon, and rĕc′tum. Attached to the cæ′cum is the appendix vermifŏr′mis.

41

DUODĒ′NUM.

First or oblīque′ portion, second or perpendĭc′ular portion, third or transverse portion.

The CŌ′LON is divisible into ascending cō′lon, transverse cō′lon, and descending cō′lon.

The sĭg′moid flexure is a curve of the descending cō′lon.

The rectum terminates at the ā′nus.

42

STRUCTURE OF THE INTES′TINAL CANAL.

The phăr′ynx has three coats: mucous, fī′brous, and muscular.

The œsŏph′agus[6] has two coats: the mū′cous and muscular.

The stomach and intestines have three coats: mū′cous, mŭs′cular, and sē′rous.

[6] Pronounce œsŏ′agus.

43

MU′COUS COAT.

Longitudinal plī′cæ, rū′gæ, pȳlor′ic valve, văl′vulæ connivĕn′tes, ī′leocæcal valve (văl′vula Bauhini), columns of rectum.

The mucous membrane is composed of three layers: an ĕpĭthē′lĭum, proper mucous or păp′illary layer, and fī′brous layer.

44

GLANDS AND FŎL′LICLES BELONGING TO THE MUCOUS MEMBRANE OF THE INTES′TINAL CANAL.

Pharȳnge′al glands,
Œsophagē′al glands,
Gas′tric fŏl′licles,
Duodē′nal glands (or Brunner's glands),
Glan′dulæ solitā′riæ,
Glan′dulæ aggregā′tæ (or Peyer's glands),
Simple fŏl′licles (or fŏl′licles of Lieberkühn).

45

Two special muscles belonging to the œsŏph'agus:—
The brŏn'cho[7]-œsophage'al and
Pleuro-œsophage'al.

THE LIVER.

The five ligaments which retain it in its place:—

The longitudinal ligament,
Two lateral ligaments,
The cŏr'onary ligament,
The round ligament.

[7] Pronounce bronk'o.

46

FISSURES OF THE LIVER.

Longitudinal fissure,
Fissure of the ductus vēnō'sus,
Transverse fissure,
Fissure for the gall bladder,
Fissure for the vē'nă cā'vă.

47

LOBES OF THE LIVER.

Right lobe,
Left lobe,
Lōbus quadrā'tus,
Lōbus Spigĕl'ĭi,
Lōbus caudā'tus.

VESSELS OF THE LIVER.

Hēpăt'ic artery,
Portal vein,
Hēpăt'ic veins,
Hēpăt'ic ducts,
Lymphatics.

48

The liver is composed of lŏb'ules, of a connecting medium (*Glisson's capsule*), of the ramifications of the portal vein, hēpăt'ic duct, hēpăt'ic artery, hēpăt'ic veins, lymphatics and nerves; and is enclosed and retained in its situation by the peritonē'um.

49

LŎB′ULES OF THE LIVER.

Each lob′ule, about the size of a millet seed, is composed of a plexus of biliary ducts, of a venous plexus formed by branches of the portal vein, of a branch (intralŏb′ular) of an hēpăt′ic vein, and of minute arteries, nerves, and absorbents.

A′cĭnī of Malpighi.

50

Glisson's *Capsule* is divided into three portions:—A vagī′nal portion, interlob′ular portion, and lob′ular portion.

Branches of the portal vein—The vagī′nal, interlob′ular, and lob′ular branches.

Vagī′nal plexus,
Lob′ular venous plexus,
Vagī′nal biliary plexus,
Lob′ular biliary plexus,
Cap′sular arteries,
Sublob′ular veins,
Hēpăt′ic trunks.

51

The gall bladder is the reservoir of the bile; it is a pўr′ĭform sac, composed of three coats: serous, fibrous, and mucous.

The BIL′IARY DUCTS are the ductus commū′nis cholē′dochus,[s] the cўs′tic duct, and hēpăt′ic duct.

---

[s] Pronounce kole′dokus.

52

The KIDNEY presents, in its interior, two structures, an external or vascular (*cortical*), and an internal or tubular (*medullary*) substance. Hī′lus rēnā′lis, tū′bulī urĭnīf′erī, cŏr′porā Malpighia′na, căl′ўx, pĕl′vis of the kidney, infundĭb′ulă, stellated vessels. The ū′reter is the excre′tory duct of the kidney.

53

VIS'CERA OF THE PEL'VIS.

In the Male.

The u'rinary bladder, Prostate gland, Vēsĭ'culæ semĭnā'lēs, and Rectum.

THE BLADDER.

Trĭgō'num vēsĭ'cæ, ū'vŭlă vēsĭ'cæ; *three coats*, an external or serous, a muscular coat, and a mucous coat.

54

The bladder is divided into *body*, *fundus*, *base*, and *neck*. The true ligaments of the bladder, seven:—

Two anterior,
Two lateral,
Two umbilical, and
The ū'rachus.

The false ligaments of the bladder are:—

Two anterior,
Two posterior.

55

ORGANS OF GENERATION.

In the Male.

The pē'nis and the tĕs'tēs, with their appendages.

PE'NIS.

Body, root, extremity, or glans-pē'nis, meā'tus urinā'rius, fræ'num prepu'tĭi, corō'na glandis, gland'ulæ Tysō'ni (odorĭf'eræ), præpū'tium. Corpus cavernō'sum, corpus spongiō'sum, septum pectinifŏr'mē.

56

The *Urē'thră* extends from the neck of the bladder to the meā'tus urinā'rius. It is composed of a mucous coat, and an elastic fibrous coat.

DUCTS WHICH OPEN INTO THE URE'THRA.

Ducts of Cowper's glands,
Prostate gland,
Vā'să dēferĕn'tia,
Vēsĭ'culæ semĭnā'lēs.

57

The urē'thră (*in the male*), about 9 inches in length, is divided into a prostatic, mem'branous, and spongy portion.

PROSTAT'IC PORTION.

Vē'rŭ montā'num or cā'put gallina'ginis, and prostat'ic sī'nus.

SPONGY PORTION.

Lacu'na mag'na.

58

THE TES'TĒS.

Scrō'tum, integument, dartos, septum scrō'tī, sperma'tic cord, vas dē'ferens, tū'nică vaginā'lis, tū'nică albugĭn'ea (dura mater testis), tū'nica vascŭlō'să (pĭ'ă mater testis), tū'bŭlī seminĭf'erī, vā'să rĕc'tă, rē'te testis, vā'să efferĕn'tiă, cō'ni vascŭlō'sī, epidĭd'ўmus.

59

VIS'CERA OF THE FEMALE PEL'VIS.

The bladder,
Vagī'nă,
U'terus, with its appendages, and
The rectum.

Some portion of the small intestines also occupies the upper part of its cavity.

60

The urē'thră (*in the female*) is about an inch and a half in length.

STRUCTURE OF THE VAGI'NA.

Mucous lining,
Erec'tĭle tissue,
Contrac'tĭle fibrous tissue (external or dartoid layer).

MUCOUS MEMBRANE.

Transverse papĭl'læ or rū'gæ,
Columns of the vagī'na.

61

NERVES OF THE U'TERUS.

Hўpogas'tric ganglion,
Spermat'ic ganglion,
Vĕs ĭcal ganglion,
Vagī'nal ganglion,
Subperitone'al ganglia, and plexuses.

The ū'terus is divisible into fundus, body, cervix, and ōs ū'terī.

APPENDAGES OF THE UTERUS.

Fallō'pian tubes and o'varies,
Os'tium ūtĕrī'num,
Os'tium abdominā'lē.

62

THE INTERNAL ORGANS OF GENERATION.

In the Female.

The vagī'na, ū'terus, o'varies, Fallō'pian tubes.

EXTERNAL ORGANS OF GENERATION.

Mons vĕn'eris, lă'bia majōr'a, lă'bia mĭnōr'a or nўm'phæ, clit'oris, meā'tus urinā'rius, entrance of the vagī'na.

LĂ'BIA MAJŌR'A.

Vul'va, fræ'nulum lăbiōr'um, fossa naviculā'ris.

VAGI'NA.

Hў'men, ves'tibule.

63

MAMMARY GLANDS.

The măm'mæ are situated in the pectoral region. The nipple of each măm'ma is surrounded by an arē'ola; the arē'ola is furnished with sebĭp'arous fol'licles.

The excrē'tory ducts (tū'bŭlī lactĭf'erī) are from ten to fifteen in number.

VOCAB'ULARY OF TECHNICAL[1] TERMS

Employed in the foregoing Work.

1

A, *Latin preposition.* From.

ABDŌ'MEN, *substantive.* (From *ab'do*, I hide, & *omĕn'tum*, the caul.)

ABDUCĔN'TĒS, *p.* (From *abdū'co*, I draw away.)

ABDŬC'TION, *s.* The act of drawing away.

ACCESSŌ'RIUS, *adjective.* Ac'cessory (from *accĕ'do*, I approach.)

2

ACETĀ'BULUM, *s.* The pan in the joint of bones; a little saucer.

Ā'CĬNĪ, *s.* Stones or pips, of grapes or other fruits.

ACRŌ'MION, *s.* A process of the scăp'ulă (from ακρος, *ak'rŏs*, extreme, and ωμος, *ō'mŏs*, shoulder).

AD, *Latin prep.* To.

AD'AMĪ, *pr. s.* Of Adam.

3

ADDITAMĔN'TUM, *s.* An addit'ament or addition.

ADDŬC'TION, *s.* The action of drawing towards;[2] contraction.

AD'ĬPOSE, *adj.* Fatty.

ADŬLT', *s.* A person grown up.

AGGREGĀ'TÆ, *adj.* (From *ăg'grĕgo*, to assemble together.)

[2] Pronounce tō'urdz.

4

A'LAR, *adj.* Wing-like.

ALBICĂN'TIA, *participle adj.* White, growing white.

ALBĪ'NUS (Bernard Sigfred), *proper subs.* A very eminent anăt'omist, born in 1683, at Leyden, Holland.

ALBUGĬN'EUS, *adjective.* White.

[1] Pronounce tĕck'nĭcăl.

5

AL'KALĬNE, *s.* An animal substance of the consistence of jelly.

ALVĒ'OLUS, *s.* The socket of a tooth.

AMMŌ'NIS, *prop. s.* Of Am'mon.

AMPHĬ[3]-ARTHRŌ'SIS, *s.* (From αμφι, *am'phĭ*,[3] on both sides, and αρθρωσις, *arthrō'sis*, articulation.)

[3] Pronounce am'fĭ.

6

ANASTOMŌ'SIS, *s.* The inosculation or communication of vessels; as arteries, veins, lymphatics.

ANASTOMŎT'ICA MĂG'NA, *s.* A branch of the brachial artery.

AN'CON, *s.* The elbow-joint.

AN'NULAR, *adj.* Resembling a ring.

AN'NULUS, *s.* A ring.

7

ANSERĪ'NUS, *adj.* Of a goose.

ANTĪ'CUS, *adj.* Before, anterior, in front.

AN'TRUM, *s.* A cave.

A'NUS, *s.* The fundament, or termination of the rectum.

AOR'TA, *s.* (From αειρω, *aeĭ'rō*, I raise or suspend.)

A'PEX, *s.* The tip.

8

APPĔN'DIX, *s.* Something annexed or attached to.

AQ'UEDUCT, *s.* An artificial channel for water.

A'QUEOUS,[4] *adj.* Watery.

ARACHNOĬ'DĒS,[5] *adjec.* (From αραχνη, *arach'nē*,[5] a spider, and ειδος, *eĭ'dŏs*, likeness.

[4] Pronounce ā'kweus.
[5] Pronounce ch as k.

9

ARĂN'TIUS (Julius Cæsar), *prop. subs.* A famous physician and anăt'omist, born in 1520, at Bologna, Italy.

ARCĬFOR'MĒS, *adjective.* Shaped like a bow.

AR'BOR, *s.* The tree.

ARCUĀ'TUM, *part. adj.* Arched.

10

ARTHRŌ'DIA, *s.* (From αρθρον, *ar'thron*, a joint.)

ARTĬCULĀ'TION, *s.* The natural connexion of one bone with another in the skeleton.

ARYTĒ'NOID, *adj.* Funnel-shaped.

AS'PERA, *adj.* Rough.

ASTRĂG'ALUS, *s.* The ankle bone.

11

AT'LAS, *s.* (From τλαω, *tlā'ō*, to sustain.) So named from its supporting the head, as At'las was said to support the world.

ATTŎL'LENS, *part. adj.* Lifting up.

AT'TRĂHENS, *part. adj.* Drawing to.

AUDITŌ'RĬUS, *adj.* For hearing.

AUDĪ'TŪS, *s.* Of the hearing.

12

AU'RĬCLE, *s.* A cavity of the heart resembling a little ear.

AURĬC'ULAR, *adj.* Ear-like.

AURĬCULĀ'RIS, *adj.* Pertaining to the ear.

AXĬL'LA, *s.* The arm-pit.

AX'ILLARY, *adj.* Belonging to the arm-pit.

13

Ax'IS, *s.* The line, real or imaginary, that passes through anything, and on which it may be supposed to revolve.

A'ZYGOS, *adj.* From *a*, *a*, without, and *ζυγος*, *zu'gŏs*, a yoke.

BĂC'CATED, *adj.* (From *băc'ca*, a berry.)

BĂS'ILAR, *adj.* (From *bā'sis*, a base.)

14

BAUHĪ'NUS (Gaspar), *prop. subs.* A Swiss anăt'omist & bŏt'anist, born in 1560, at Basil, Switzerland; died in 1624.

BĪ'CEPS, *adject.* Two-headed.

BĬCHAT (Marie François Zavier), *prop. s.* A celebrated French physiol'ogist, born in 1771, at Thoirette, France.

15

BĪCĬP'ĬTAL, *adj.* Relating to the bī'ceps muscle.

BĪCŬS'PID, *adj.* Having two points.

BĪFURCĀ'TIO, *s.* (From *bĭs*, twice, and *fŭr'ca*, a fork.

BĪFURCĀ'TION, *s.* The division of a trunk into two heads.

BĬL'IARY, *adj.* Relating to the bīle.

16

BLUMENBACH (John Frederic), *prop. s.* A celebrated naturalist, born in 1752, at Gotha, Germany; died in 1840.

BRĒ'VIA, *adj.* Short.

BRĒ'VIS, *adj.* Short.

BRŎN'CHIA,[6] *s.* (From *βρογχος*, *brŏg'chŏs*,[7] the throat.

[6] Pronounce bron'kia.
[7] Pronounce brong'kos.

17

BRUNNER (John Conrad), or VON BRUNN, *prop. s.* Anăt'omist, born in 1653, at Diessenhofen, Zurich, Switzerland; died in 1727.

BŬC'CA, *s.* The cheek.

BUCCINĀ'TOR, *s.* (From *bŭc'cĭno*, I blow the trumpeter's muscle.

BULBŌ'SUS, *adj.* Bulbous.

18

BŬR'SA, *s.* A bag.

CÆ'CUM, *adj.* Blind.

CĂL'AMUS, *s.* A pen.

CALCĀ'NEUS, *s.* The bone of the heel.

CALLŌ'SUM, *adj.* Hard.

CĂLYCĬFOR'MĒS, *adj.* Shaped like a căl'ўx (the cup of a flower.)

CĂLX, *s.* The heel.

CĂNĪNE', *adj.* Partaking of the nature of a dog.

19

CĂN'THUS, *s.* The angle of the eye.

CAPĬL'LUS, *s.* A hair.

CAPITĀ'TUM, *adj.* Resembling a head.

CAPĬT'ULUM, *s.* A small head or knob.

CĂP'SULA, *s.* (From *căp'sa*, a box or case.)

CĂP'SULAR, *adj.* Surrounding a part like a bag.

20

CAR'BONATE, *s.* A compound formed by the union of carbŏn'ic acid with a base.

CAR'NEÆ, *adj.* Fleshy.

CARŌT'ID, *adj.* (From καρόω, *kăr'ŏō*, I cause to sleep;) because the carotid arteries supply the head with blood, and the ancients believed sleep to be caused by an increased flow of blood to the head.

21

CAR'PAL, *adj.* From *car'pus*, the wrist.

CAR'TILAGE, *s.* Gristle.

CARŪN'CULA, *s.* A car'uncle, a little fleshy excrĕs'cence.

CASSĒ'RIO (Julius), *prop. s.* An Italian anăt'omist, born in 1545, at Plaisance, Italy; died in 1616; surnamed *Placen'tius*, from being a native of Plaisance.

22

CĂT'EGORY, *s.* A class

CAU'DA, *s.* The tail.

CAUDĀ'TUS, *adj.* Tailed.

CĀ'VA, *adj.* Hollow, full of holes.

CAVERNŌ'SUM, *s.* Hollow.

CENTRĀ'LIS, *adj.* Placed in the middle.

CĒPHĂL'IC, *adj.* Pertaining to the head.

CĒ'RA, *s.* The wax.

CĔRĔBĔL'LUM, *s.* The little brain.

23

CĔR'EBRAL, *adj.* Pertaining to the brain.

CERŪ'MINOUS, *adj.* Waxy.

CĔR'VĪCAL, *adj.* Belonging to the neck.

CĔR'VIX, *s.* The back part of the neck.

CHLŌ'RĪDE, *s.* Chlō'rine, with a combustible body.

CHŌ'LĒ,[8] *s.* χολή (*chō'lē*). The bile.

[8] Pronounce kō'lee.

24

CHOLĒ'DOCHUS,[9] *s.* That which receives the bile.

CHOR'DÆ,[9] *s.* Strings.

CHŌ'ROID,[9] *adj.* Resembling the cho'rion

CHY'LUS,[9] *s.* (From χυλός, *chū'lŏs*[9] juice.)

CĬL'IUM, *s.* The edge of the eyelid, and the eyelash.

CĬR'CULUS, *s.* A little circle.

[9] Pronounce ch as k.

25

CIRCUMDŬC'TION, *s.* The action of drawing round.

CĬR'CUMFLEX, *s.* A name given to objects which wind round others.

CIRCUMVALLĀ'TAS, *part. past.* Trenched about.

CLAVĀ'TUS, *adj.* Clubbed.

CLĂV'ĬCLE, *s.* The collar bone, *clavĭc'ula* (from *clā'vis*, a key.)

26

CLEĪ'DO, *s.* (From κλείς, *kleis*, the clăv'icle.)

CLĪ'NOID, *adj.* Resembling a bed.

CLĪ'VUS, *s.* The declĭv'ĭty.

CLŪ'NĬUM, *s.* Of the buttocks.

CŒ'LIC, *adj.* Belonging to the belly.

CŎC'CYX, *s.* So called from resembling the cuckoo's bill.

27

CŎCH'LEA,[1] *s.* A snail's shell.

CŎL'ICA, *s.* (From κῶλον, *kō'lon*) the name of a portion of the intestines.

COLLĂT'ERAL, *adj.* Side to side.

CŎL'LUM, *s.* The anterior part of the neck.

CŌ'LON, *s.* (From κοῖλος, *koï'los*, hollow.)

[1] Pronounce kŏk'lea.

28

COLŬM'NÆ, *s.* Columns.

CŌ'MĒS, *s.* A companion.

COMMĬS'SURE, *s.* A juncture or point of union.

COMMŪ'NIS, *adj.* Common, the same.

COMPRĔS'SOR, *s.* (From *com'prĭmo*, I press together.)

CON'CAVE,[2] *adj.* Hollow.

[2] Pronounce kŏng'kave.

29

CŎN′CHA,[3] *s.* A bĭ′valve shell.

CON′DYL, *s.* The protuberance at the joint of a bone.

CŌNE, *s.* A solid, of which the base is a circle and the summit a point.

CONGĔN′ERĒS, *s.* (From *cum*, with, and *gĕ′nus*, kind, species.)

[3] Pronounce kŏn′ka.

30

CŌ′NĬCÆ, *adj.* Cŏn′ical.

CON′JUGATE, *adjective.* United by some part.

CONJUNCTĪ′VA, *adjective* Uniting (from *conjun′go* to unite.)

CŌ′NOID, *adj.* Resembling a cone.

CON′STITUTE (TO), *verb active.* To form or compose.

CONSTRĬC′TOR, *s.* (From *constrĭn′go*, I bind together.)

31

COR′ACOID, *adj.* Resembling a crow's beak.

CŌ′RIUM, *s.* Leather; the deep layer of cū′tis or true skin.

CŎR′NEA, *s.* So called from being of a horny substance.

CORNĬC′ULA, *s.* A little horn.

COR′NA, *s.* The horn of an animal.

32

COR′NU AMMŌ′NIS, *s.* So called from its being bent like a ram's horn, the famous crest of Jupiter Am′mon.

CŎR′ONAL, *adj.* (From *corō′na*, a crown or garland.)

CŎR′ONARY, *adj.* Crown-like.

CŎR′ONOID, *adj.* Like a crow's beak.

33

COR'PUS, *s.* A body.

CŎR'RUGATE (TO), *v. ac.* To wrinkle.

COR'TICAL, *adj.* Resembling bark.

CŎS'TAL, *adj.* Belonging to the ribs.

COSTĀ'LIS, *adj.* Belonging to the ribs.

CŎT'ŸLOID, *adj.* Resembling a cup, or an ancient measure, named κοτύλη (*kŏt'ulē*).

34

COWPER (William), *pr. s.* An English anăt'omist, born in Hampshire, England, in 1661; died in 1709.

CRĀ'NIUM, *s.* The skull.

CREMĂS'TER, *s.* (From κρεμάω, *krĕm'aō*, I suspend.)

CRĪ'BRĬFORM, *adj.* Sieve-like.

CRĪ'COID, *adjec.* Ring-like.

35

CRĪCOI'DĒS, *adj.* (From κρίκος, *krī'kŏs*, a ring, and εἶδος, *eī'dŏs*, resemblance.)

CRĬS'TA, *s.* A crest.

CRŪ'CIAL, *adj.* Like a cross.

CRŪ'RA, *s.* The legs.

CRURÆ'US, *s.* (From *crŭs*, a leg.)

CŪ'BOID, *adj.* Resembling a cube.

36

CŪNĒ'ĬFORM, *adjective.* Wedge-like.

CŬM, *Latin prep.* With.

CŬS'PĬD, *adj.* Pointed.

CUTĀ'NEOUS, *adj.* Relating to the skin.

CŪ'TIS, *s.* The skin.

CŸL'ĬNDER, *s.* A long circular body of uniform diameter, whose surface at each end is a circle par'allel to that at the other end.

37

CŸLĬN'DRĬCAL, *adj.* Like *a cȳl'inder.*

CŸS'TIC, *adj.* Belonging to the gall bladder, or urinary bladder.

DAR'TOS, *s.* (From δέρω, *dĕ'rō*, I excoriate.)

DECĬD'UOUS, *adj.* Falling off.

DĔL'TOID, *adj.* Like the Greek letter *dĕl'ta* (δ).

38

DENTĀ'TA, *adj.* Having points like teeth.

DER'MA, *s.* Δερμα (*der'ma*), the skin.

DESCĔN'DENS, *part.* Descending.

DETRĪ'TA, *adj.* Worn down.

DEXTRA, *adj.* That is on the right.

DĪ'A, *Greek prep.* Through.

39

DĪĂM'ETER, *s.* That which passes through the centre of a curvilĭn'ear figure, and is terminated at both ends by the circŭm'ference.

DĪAPHRĂG'MA, *s.* (From διαφρασσω, *dīaphrăs'sō*, I separate by a partition), the mĭd'riff.

DĪGĂS'TRIC, *adj.* Double bellied.

40

DĬ'GĬTAL, *adj.* Pertaining to a finger.

DĪLATE' (TO), *v. ac.* To extend, to spread out.

DĬP'LOË, *s.* (From διπλόω, *dĭp'lŏō*, I double.)

DOR'SAL, *adj.* Belonging to the back.

DUODĒ'NUM, *s.* (From *duodē'ni*, twelve.)

41

DŪ'RUS, *adj.* Hard.

E, *Latin prep.* Of or from.

ELLĬP'TICAL, *adj.* Having the form of an ellipse or oval.

EMŬL'GENS, *adj.* (From *emul'geo*, I milk out.)

EN, *Greek prep.* In.

ENCĔPH'ALOS,[3] *s.* (From ἐν, *ĕn*, in and κεφαλή, *kĕph'alē*,[3] the head.)

[3] Pronounce ph as f.

42

EN'SĬFORM, *adj.* Sword-shaped.

EPHĬP'PIUM,[4] *s.* A saddle.

EPĬDER'MA, *s.* The scarf skin.

EPIDER'MAL, *adj.* Relating to the scarf skin or cuticle.

EP'ĬGLŎT'TIS, *s.* (From ἐπί, *ĕpi*, upon, and γλωττίς, *glōt'tis*, the glottis.)

[4] Pronounce efĭp'pium.

43

EPIGLOU'TIS, *s.* (From ἐπί, *ĕpi*, upon, and γλουτός, *glŏu'tŏs*, the buttocks.)

EPĬPLŌ'ICUS, *adj.* Appertaining to the omentum, epĭp'loic.

EPĬP'LOON, *s.* The omentum. (From επιπλέω, *ĕpip'lĕō*, I swim or sail on or against.)

44

EPĬTHĒ'LIUM, *s.* The cuticle covering a mucous membrane.

EQUĪ'NA, *adj.* Of a horse.

ERŬP'TIVE, *adj.* Bursting forth.

ETH'MOID, *adj.* Sieve-like.

45

EUSTĀ'CHIUS[5] (Bartholomew), *pr. s.* A learned Italian anatomist, one of the founders of modern anăt'omy, born at San Severino (Naples), Italy, about 1510; died in 1571.

EXCRĒ'TORY, *adj.* Having the power of ejecting and separating excrements.

[5] Pronounce ch as k.

46

FĂ'CET, *s.* A small surface, as one of those on a diamond.

FALLŌ'PIUS (Gabriel), *pr. s.* A celebrated Italian physician and anăt'omist, one of the founders of modern anăt'omy, born about 1523, at Modē'na, Italy; died in 1562.

FĂLX, *s.* A scythe.

47

FASCĬC'ULUS, *s.* A little bundle.

FAU'CES, *s.* The plural of *faux*, the gorge or gullet pipe.

FĔM'ORAL, *adj.* Relating to the fē'mur.

FĒ'MUR, *s.* The thigh bone.

FENĔS'TRA, *s.* The window.

FĪ'BRE,[6] *s.* A simple filament.

[6] Pronounce fī'bur.

48

FĪLIFOR'MES, *adjective.* Shaped like a thread.

FĬMBRIĀ'TUM, *part. adj.* Fringed.

FĪS'SURE, *s.* A name given to a long and deep depression in a part.

FLEX'ION, *s.* The act of bending a joint.

FLŪ'ATE, *s.* A salt formed by the fluor'ic acid with a base.

49

FŎL'LICLE, *sub.* A little bag, a gland.

FONTĀ'NA (Felix), *prop. s.* An Italian anăt'omist, born in 1730, in the Tyrol, Austria; died in 1805.

FORĀ'MEN, *s.* A little opening.

FORNICĀ'TUS, *adjective.* Vaulted.

FOR'NIX, *s.* An arch or vault.

50

FŎS'SA, *s.* A little depression or sī'nus.

FRÆ'NUM, *s.* A bridle.

FRÆ'NULUM, *s.* A little bridle.

FRŎN'TAL, *adj.* Belonging to the forehead.

FUNGĬFOR'MĒS, *adjective.* Like a fungus.

FUNĬC'ULUS, *s.* A little cord.

FŪ'NIS, *s.* A cord.

51

GĂL'EA, *s.* A helmet.

GĀ'LEN (Clau'dĭus), *pr. s.* After Hĭppŏc'ratēs, prince of the Greek physicians, born in 131 A.D., at Per'gămus, Lesser Asia.

GĂL'LĪ, *s.* Of a cock.

GĂL'LUS, *s.* A cock.

GASTROCNĒ'MIUS, *sub.* (From γαστήρ, *gas'tēr*, stomach, and κνήμη, *knē'mē*, leg.)

52

GĔL'ATĬNE, *s.* An animal substance of the consistence of jelly.

GEMĔL'LUS, *s.* (From *gĕm'ĭnus*, double.)

GENĬCULĀ'TUM, *adjec.* Bent like the knee.

GĔN'ĪO,† *s.* (From γένειον, *gĕnei'on*,† the chin.)

GĬNG'LĬMUS,† *s.* A hinge.

† Pronounce g hard.

53

GLĂN'DULÆ, *s.* Little glands.

GLĒ'NOID, *adj.* Socket-like.

GLENOI'DĒS, *adj.* (From γλήνη, *glē'nē*, a cavity, and εἶδος, *eī'dŏs*, a likeness.)

GLISSON (Francis), *pr. s.* An eminent physician and anăt'omist, born in 1597, at Rampisham, Dorsetshire, England; died in 1677.

54

GLŎS'SA, *s.* The tongue.

GLŎT'TA, *s.* The tongue.

GLŎT'TIS, *s.* The aperture of the windpipe.

GOMPHŌ'SIS, *s.* (From γομφόω, *gŏm'phŏō*, I drive in a nail.)

GRĂ'CĬLIS, *adj.* Slender.

GRĂN'ULUM, *s.* A little grain.

GŬS'TĂTORY, *adj.* Appertaining to the sense of taste.

55

GŸ'RUS, *s.* A circle.

HÆ'MORRHAGE, *s.* A flow of blood.

HÆMORRHOID'AL, *adjec.* Belonging to the hæmorrhoid'al vessels.

HĀ'LO, *s.* A red circle round the sun or moon; the bright ring round the head of a holy person in a painting.

56

HĂM'ULAR, *adj.* Hook-like.

HARMŌ'NIA, *s.* Har'mony. A connexion of bones by means of rough margins not dĕn'tiform.

HĔL ĭCĭS, *s.* Of the hĕl'ix.

HĔL'ĪCO, *adj.* Relating to the helix.

HĔL'IX, *s.* ἕλιξ, *hĕl'ix*, a spiral line, a coil. (From ἕιλω, *eī'lō*, I turn round.)

57

HĒPĂT'IC, *adj.* Appertaining to the liver.

HERŎPH ĬLĪ, *s.* Of Herŏph'ĭlus.

HERŎPH'ĬLUS, *pr. s.* A very learned ancient physician and anăt'omist of Chalcē don,[8] Asia Minor; lived 500 years before Christ.

HĪĂ'TUS, *s.* A hole, an opening.

[8] Pronounce kalcē'don.

58

HIGHMORE (Nathaniel), *pr. s.* A celebrated English anăt'omist, born in 1613, at Fordingbridge, Hampshire, England.

HĪ'LUM, *s.* The eye of a seed.

HĪ'LUS LIĒ'NIS, *s.* A fissure of the spleen.

HĪ'LUS RENĀ'LIS *s.* A fissure of the kidneys.

59

HĬPPOCAM'PUS, *s.* The sea-horse, a small marine animal.

HĬPPŎC'RATĒS, *prop. s.* The father of physic and prince of physicians, born 460 years before Christ, in the island of Cōs (or Cē'os or Zia), situated in the Ar'chipel''ago.[9]

[9] Pronounce ar'kipel''ago.

60

HĬRŬN'DĬNĬS, *s.* Of the swallow.

HORĬZŎN'TAL, *adj.* At right angles with a perpendicular.

HŪ'MERUS, *s.* The bone of the arm.

HŸ'OID, *adj.* Like the Greek letter *ūpsī'lon* (υ), u.

61

HŸPOCHONDRĪ'ACUS,[1] *adj.* (From *ὕπο, u'pŏ*, under, and *χόνδρος, chon'dros*,[1] a cartilage.)

ĪL'IAC, *adj.* Belonging to the flanks.

Ī'LEUM, *s.* (From *εἰλέω, eĭ'lĕō*, I turn about.)

Ī'LĬUM, *s.* The haunch bone, from *ĭ'lĭa*, the small intestines, because it supports them.

[1] Pronounce ch as k.

62

INCĪ'SORS, *s.* Cutting teeth.

INCĪSŪ'RA, *s.* An incĭsion.

IN'CUS, *s.* An anvil, a bone of the ear.

IN'DEX, *s.* The forefinger.

IN'FRA, *prep.* Beneath.

INFUNDĬB'ULUM, *sub.* A funnel.

IN'TER, *prep.* Between.

63

INTERNŌ'DIS, *sub.* The space between the joints.

IN'TRA, *prep.* Within.

IN'TRO, *prep.* Within.

INTUMESCĔN'TIA, *sub.* (From *intumĕs'co*, to swell.)

I'RIS, *s.* A rainbow.

ĪSCHIĂT'IC,[2] *adj.* Belonging to the is'chĭum.[2]

Ĭs'CHĬUM,[2] *s.* The hip bone. (From *ἰσχίον, ĭs'chĭon*,[2] the hip.)

[2] Pronounce ch as k.

64

ISTH'MUS,[3] *s.* A narrow piece of land between two seas.

Ī'TER, *s.* A way.

JĒJŪ'NUM, *s.* (From *jē-ju'nus*, hungry or empty.)

LĀ'BIAL, *adj.* Belonging to the lips.

LĂB'ŸRINTH, *s.* A maze, a place with inextricable windings.

[3] Pronounce ist'mus.

65

LĂ'CERUM, *adj.* Torn, ragged.

LĂCH'RYMAL,[4] *adj.* Belonging to the tears.

LĂC'TEUS, *adj.* (From *lac*, milk.)

LĂCŪ'NA, *s.* A ditch or channel. (From *lā'cus*, a lake.)

LĀ'CUS, *s.* A lake, a channel.

LĂMB'DOID, *adj.* Like the Greek letter *lambda* (λ), *l.*

[4] Pronounce lăk'rymal.

66

LĂM'ĬNA, *s.* A thin plate or scale.

LĂ'QUEUS, *s.* A noose.

LĂR'ĬNX, *s.* (From the Greek λαρυγξ, *lăr'ugx*[5].)

LĂT'ERAL, *adj.* Belonging to the side.

LAXĀ'TOR, *s.* (From *laxo*, I loosen.)

LENS, *s.* A lentil.

[5] Pronounce lăr'ungx.

67

LĔNS, *s.* A piece of glass or other transparent material, so shaped as to be capable of rĕfrăc'ting the rays of light.

LENTĬC'ULAR, *adjective.* Shaped like a lens.

LEVĀ'TOR, *s.* (From *lĕ'vo*, I lift up.)

68

LIEBERKÜHN (John Nathaniel), *prop. s.* A Prussian anăt'omist, born in 1711, at Berlin, Prussia; died in 1756.

LIĒ'NIS, *s.* Of the spleen.

LĬM'BUS, *s.* The limb, the brim or border.

LĬN'GUA, *s.* The tongue.

LŎB'ULAR, *adjec.* Furnished with lobes.

69

LOWER (Richard), *pr. s.* A celebrated English physician and anăt'omist, born at Trema, Cornwall, England, about 1631; died in 1691.

LOW'ERĪ, *pr. s.* Of Lower.

LŬM'BAR, *adj.* Pertaining to the loins.

LŬM'BRĬCUS, *s.* An earthworm.

LŪ'TEUS, *adj.* Yellow.

70

LŸMPH,[6] *s.* The liquid contained in the lŷmphăt'ic[6] vessels.

LŸ'RA, *s.* A lyre. (A musical instrument.)

MĂG'NUM, *adj.* Great.

MĀ'JOR, *adj.* Greater.

MĀ'JUS, *adj.* Greater.

MĀ'LAR, *adj.* Belonging to the cheek.

MĂLLĒ'OLUS, *s.* A little mallet.

[6] Pronounce ph as f.

71

MĂL'LEUS, *s.* A hammer.

MALPIGHI[7] (Marcello), *pr. s.* An Italian phŷsĭ'cian and anăt'omist, born in 1628, at Crevalcuore, Italy; died in 1694.

MĂM'MARY, *adjec.* Relating to the breast.

MANŪ'BRĬUM, *s.* The handle.

MASSĒ'TER, *s.* (From *μασσάομαι, massa'ŏmaī*, I chew.)

[7] Pronounce Malpē'ghe.

72

MĂS'TOID, *adj.* Like a nipple.

MĀ'TER, *s.* Mother.

MĂX'ILLARY, *adj.* Belonging to the jaw.

MEĀ'TUS, *s.* A passage.

MEĀ'TUS AUDITŌ'RIUS, *s.* The hearing passage.

MECKEL (John Frederic), *pr. s.* Anăt'omist, born in 1714, at Wetzlar, Germany; died in 1774.

73

MECKEL (John Frederic), *pr. s.* Grandson of the foregoing Meckel, anăt′omist, born in 1781, at Halle, Germany; died in 1833.

MĒ′DIA, *adj.* Middle.

MEDIĀ′NUS, *adj.* Middle.

MEDIASTĪ′NUM, *s.* (*Quasi in mĕ′dio stans*, as it were in the middle standing.)

74

MĒ′DĬUS, *adj.* Middle.

MEDŬL′LARY, *adj.* Pertaining to the marrow.

MEIBŌ′MĬUS (John H.), *pr. s.* A German physician, born at Helmstadt, Germany.

MEIBŌ′MIUS (Henry), *pr. s.* A German physician, son of the above, born in 1638, at Lubeck, Germany; died in 1700.

75

MENINGĒ′AL, *adj.* Relating to the menĭn′gēs or membranes of the brain.

MEN′TUM, *s.* The chin.

MESENTĒ′RIUM, *s.* The mĕs′entery (from μέσος, *mĕs′os*, the middle, and ἔντερον, *ĕn′tĕron*, an intestine.

MĔTACAR′PAL BONES, *s.* Those between the wrist and the fingers.

76

MĔTACAR′PUS, *s.* (From μετά, *mĕt′a*, after, and καρπός, *car′pŏs*, the wrist.)

METATAR′SAL BONES, *s.* Those between the ankle and the toes.

MĪD′RIFF, *s.* The diaphragm.[8]

MĬN′ĬMUM, *adj.* Least.

MĪ′NUS, *adj.* Less.

MĪ′TRAL, *adject.* Like a mĭtre.[9]

[8] Pronounce dī′afram.
[9] Pronounce mī′tur.

77

MODĪ'OLUS, *s.* A little measure.

MŌ'LAR, *adj.* Appertaining to a mill, or to the operation of grinding.

MŎL'LIS, *adj.* Soft.

MONRO (Alexander), *pr. s.* An eminent Scotch phўsĭ'cĭan and anăt'omist, born in 1697, in London; died in 1760.

78

MONS, *s.* A mountain, an eminence.

MORGAGNI (John Baptist), *pr. s.* An eminent Italian anăt'omist, born in 1682, at Forli, Italy; died in 1771.

MOTŌ'RĒS, *s.* Movers.

MUCŌ'SUS, *adj.* Of the nature of mucus.

79

MŪ'CUS, *s.* One of the primary fluids of an animal body, distinct from gĕl'atĭne and vegetable mu'cus.

MULTĂN'GULUM, *adjec.* Many cornered.

MULTĬF'IDUS, *adj.* Divided into many parts.

MŬS'CULĪ, *s.* Muscles.

80

MŸ'LO HŸOIDĒ'US, *s.* So called from its origin near the den'tēs molā'rēs (*μύλοι*, *mu'lŏi*), grinders, and its insertion into the ōs hўoid'ēs.

MŸŎL'OGY, *sub.* (From *μῦς*, *mus*, a muscle, and *λόγος*, *lŏg'os*, a discourse.)

MŸR'TIFORM, *adj.* Myrtle-like.

NĀ'RĒS, *s.* The nostrils.

81

NĀ'SAL, *adj.* Belonging to the nose.

NĀ'SUS, *s.* The nose.

NAVĬCULĀ'RIS, *adjective.* Boat-like.

NEURŎL'OGY, *s.* (From *νεῦρον*, *nĕu'rŏn*, a nerve, and *λόγος*, *lŏg'ŏs*, a discourse.)

NĪ'GRUM, *adj.* Black.

NŌ'NĪ, *adj.* Of the ninth.

82

OBLĬQUE', *adjective.* Not direct, not perpendĭc'ular, not par'allel.

OBLĪ'QUUS, *adj.* Oblique.

OBTURĀ'TOR, *s.* A stopper-up.

OCCĬP'ITAL, *adjec.* Belonging to the back of the head.

OC'ULAR, *adj.* Appertaining to the eye.

OCCULŌ'RUM, *s.* Of the eyes.

ODŎN'TOID, *adj.* Shaped like a tooth.

83

ŒSŎPH'AGUS,[1] *sub.* The gullet. (From *οἴσω*, *ŏi'sō*, I will carry, and *φαγω*, *phā'gō*,[1] I eat.)

OLECRĀ'NON, *sub.* The elbow.

OLFĂC'TORY, *adj.* Pertaining to the sense of smell.

OLĬVĀ'RĬA, *adj.* Resembling an olive.

[1] Pronounce ph as f.

84

ŌL'ĪVARY, *adj.* Resembling an olive.

O'MEN, *s.* A sign or indication of some future event.

OMĔN'TUM, *s.* The caul. (From *omĕn'tum*, an omen.)

OPHTHĂL'MIC,[2] *adj.* Relating to the eye.

OP'TIC, *adj.* Relating to vision.

[2] Pronounce opthăl'mic.

85

OP'TICUS, *adj.* Relating to vision.

OR'BITAL, *adj.* Belonglonging to the orbits.

ORBĬC'ULAR, *adj.* Round.

ORBĬC'ULUS, *s.* A little ring.

ORGĂN'IC, *adj.* Possessed of organs.

Ō'RIS, *s.* Of the mouth.

Ōs, *s.* A bone.

Ōs, *s.* The mouth.

86

Ōs INNOMINĀ'TUM, *s.* The nameless bone, being composed of three bones of different names.

Os PŪ'BIS, *s.* The share bone.

Ōssĭc'ULA, *sub.* Little bones.

Os'TĬUM, *s.* A door or opening.

O'TIC, *adj.* Appertaining to the ear.

87

OTOCŎN'ĪTĒS, *s.* (From *οὖς, ŏus*, the ear, and *χόνις, chŏ'nis*,[3] dust.)

OVĀ'LIS, *adj.* O'val.

OVĀ'RIAN, *adj.* Belonging to the ovā'rium.

O'VUM, *s.* An egg.

PĂL'ATĪNE, *adj.* Belongto the palate.

PĂL'MAR, *adj.* Relating to the palm of the hand.

[3] Pronounce ch as k.

88

PĂL'PEBRĂ, *s.* The eyelid.

PĂN'CREAS, *s.* (From *παν, pan*, all, and *κρέας, krĕ as*, flesh.)

PĂPĬL'LA, *s.* The fine termination of a nerve.

PĂP'ILLARY, *adj.* Resembling a nipple.

PAR, *s.* A pair.

PARĪ'ETAL, *adj.* (From *pā'rĭes*, a wall.)

89

PARŎTĬDĒ'US, *s.* (From *παρά, pa'ra*, about, and *οὖς, ŏus*, the ear.)

PAR'VA, *adj.* Little.

PATĔL'LA, *sub.* A little dish.

PATHĔT'ICUS, *adj.* (From *παθος, pă'thŏs*, an affection.)

PECTĬNÆ'US, *s.* So named from its arising at the *pĕc'ten* or *pŭ'bēs*.

PECTINĀ'TĪ, *adj.* Like the teeth of a comb.

90

PECTINĒ'AL, *adj.* Relating to the *pĕc'ten* or *pŭ'bēs*.

PĔC'TUS, *s.* The breast.

PĔD'ICLE, *s.* The foot stalk by which a leaf or fruit is fixed to the tree.

PELLŪ'CĬDUM, *adjective.* Clear, transparent.

PĔL'VIS, *sub.* A basin; the cavity below the belly.

PĔN'DULUM, *adj.* Hanging down, dangling.

91

PĔN'NIFORM, *adj.* Having the form of a feather.

PERFORĀ'TUS, *part. adj.* Pierced.

PERĬCĂR'DĬUM, *s.* (From *περί, pĕ'ri*, about, and *καρδία, kar'dia*, the heart.)

PERĬCRĀ'NĬUM, *s.* (From *περί, pĕ'ri*, about, and *κρανίον, krā'nion*, the crā'nĭum.)

92

PERĬNĒ'UM, *sub.* (From *περινέω, perĭn'ĕō*, I flow round.)

PERIŎS'TEAL, *adjective.* Around the bones.

PERĬTONĒ'UM, *s.* (From *περιτείνω, pĕritei'nō*, I extend round.)

PERONÆ'US, *adj.* Belonging to the fĭ'bula.

PĒS, *s.* The foot.

93

PETIT (Jean Louis), *pr. substan.* A celebrated French anăt'omist, born in 1674, at Paris, France; died in 1750.

PĒ'TRA, *s.* A rock.

PĒ'TROUS, *adjec.* Hard like a rock.

PEYER (John Conrad), *pr.s.* Anăt'omist, born in 1659, at Schaffhausen, Switzerland; died in 1727.

94

PHALĂN'GĒS, *s.* The plural of *phăl'anx*, a battalion.

PHARĬNGĒ'AL, *adjective.* Appertaining to the phar'ynx.

PHŌS'PHATE, *s.* A salt formed by phosphor'ic acid with a base.

PHRĔN IC, *adjec.* Belonging to the dī'aphragm.[4]

[4] Pronounce dī'afram.

95

PĪ'A, *adj.* Pious.

PIGMĔN'TUM, *s.* A pigment. (From *pingo*, I paint.)

PĪ'NEAL, *adj.* Like a pine-apple.

PĬN'NA, *s.* A wing.

PĪ'SĬFORM, *adj.* Pea-like.

PĬTŪ'ĪTARY, *adj.* Belonging to phlegm.

PLĀ'NUM, *adj.* Smooth.

96

PLĂTŸS'MA MŸOI'DĒS, *s.* (From πλατύς, *plă'tus*, broad, μῦς, *mus*, a muscle, and εἶδος, *eī'dos*, resemblance.)

PLAN'TAR, *adj.* Belonging to the sole of the foot.

PLEU'RA, *s.* The Greek word for a rib. The membrane which lines the internal surface of the thō'rax, and covers its vĭs'cera.

97

PLEXUS, *s.* A network. (From *plecto*, I twine or knit.)

PLI'CA, *sub.* A fold or plait.

PNEUMOGĂS'TRIC, *adjec.* (From πνεύμον, *pněumon*, the lung, and γαστήρ, *gas'tēr*, the belly.)

PŎL'LEX, *s.* The thumb.

PŌ'MUM, *s.* The apple.

PONS, *s.* A bridge.

PŎN'TEM, *s.* A bridge (accusative case).

98

POPLIT'EAL, *adj.* Appertaining to the ham or back part of the knee joint.

PORTA, *s.* A door or gate.

POR'TIO, *s.* A portion.

PŌ'RUS, *s.* A pore or duct.

POSTĪ'CUS, *adj.* Behind, posterior.

POUPART (Francis), *pr. s.* A celebrated French anăt'omist; died in 1708.

PRĪ'MUS, *adj.* First.

99

PRĬSM, *substan.* A solid contained by plane figures, of which, two that are opposite are equal, similar, and parallel to each other, and the others are părăllĕl'ograms.

PRĬS'MOID, *adj.* Like a prism.

PRŎ'CESS, *s.* An eminence or protuberance belonging to a bone.

100

PRONĀ'TION, *s.* The act of turning the palm of the hand downwards.

PRŌ'PRĬUS, *adj.* Proper, special.

PRŎS'TATE, *adj.* Standing before.

PSALLOI'DĒS, *s.* (From ψαλλος, *psal'lŏs*, a stringed instrument, and εἶδος, *eī'dos*, likeness.)

101

PSALTĒ'RĬUM, *s.* A harp.

PSŌ'AS, *s.* (From ψόαι, *psŏ'ai*, the loins.)

PTER'ĬGOID, *adj.* Resembling the wing of a bird.

PŪ'DIC, *adj.* Belonging to the pūdĕn'da.

PŬL'MO, *s.* The lung.

PŬL'MONARY, *adj.* Belonging to the lungs.

PUNC'TUM, *s.* A point.

102

PŸLŪ'RUS, *sub.* (From πύλη, *pū'lē*, an entrance, and ωρέω, *ō'rĕō*, I guard.)

PŸRAMIDĀ'LIS, *s.* (From πυραμίς, *pura'mis*, a pyramid.)

PŸR'IFORM, *adj.* Pear-like.

QUADRĀ'TUS, *adjective.* Square-figured.

QUADRĬGĔM'ĬNA, *adjec.* Four-double.

103

QUADRILĂT'ERAL, *adjec.* Having four sides.

QUAR'TUM, *adjec.* The fourth.

RACHĬD'IAN,[5] *adj.* Relating to the spine (from *rā'chis*,[5] the spine.)

RĀ'DĬUS, *s.* The smaller bone of the fore-arm.

RĀ'MUS, *s.* A branch.

RAMŬS'CULĒS, *s.* Little branches.

[5] Pronounce ch as k.

104

RĒCĔPTĂC'ULUM, *s.* A recĕp'tacle (from *recĭp'io*, I receive.)

RĔC'TUM, *s.* So named from an errō'neous opinion that it was straight.

RĔC'TUS, *adj.* Straight.

RECŬR'RENS, *part.* Running back, recurring.

REIL (J. Christian), *pr. s.* A German anăt'omist, born in 1759, at Rhanden, Hanover, Germany.

105

RĒ'NAL, *adj.* Belonging to the kidneys.

RENĀ'LIS, *adj.* Of the kidneys.

RESTIFOR'ME, *adj.* Rope-like.

RETĬC'ULAR, *adj.* Interwoven like a web.

RĔT'INA, *sub.* The true organ of vision (from *rē'te*, a net.)

RĒ'TRAHENS, *adj.* Drawing back.

106

RHOM'BOID, *s.* A figure like a romb.

RHOM'BUS, *s.* An oblique-angled parallel'ogram.

RĪ'MA, *s.* A fissure or opening.

RŎS'TRUM, *s.* A beak.

ROTĀ'TION, *s.* The act of turning round.

ROTŬN'DUS, *adj.* Round.

RŪ'GÆ, *s.* Plaits or folds.

107

RUYSCH (Frederic), *pr. s.* A Dutch anăt'omist, born in 1638, at the Hague, Holland; died in 1731.

SĂC'RUM, *s.* The five superior false ver'tebræ (from *sā'cer*, sacred.)

SĂ'GĬTTAL, *adj.* Like an arrow.

SACCĬFOR'MIS, *adj.* Like a bag.

108

SĂC'CULUS, *s.* A little bag.

SĂL'ĬVARY, *adj.* Salī'val, relating to spittle.

SALVATĔL'LA, *adj.* (From *salvo*, I preserve.)

SANTŌ'RIO, SANTORI, *pr. s.* An eminent Italian physician, born in 1561, at Capo d'Istria, Italy; died at Venice in 1636.

109

SAPHĒ'NA, *adj.* (From *σαφής, săph'ēs*,[6] conspicuous.)

SARTŌ'RIUS, *s.* (From *sartor*, a tailor.) The tailor's muscle.

SCĀ'LA, *s.* A ladder.

SCĀLĒ'NUS, *adj.* Irregular.

SCĂ'PHOID, *adj.* Boat-like.

SCĂP'ULA, *s.* The shoulder-blade (from the Hebrew, *schipha*.)

[6] Pronounce saf'ēs.

110

SCARPA (Antonio), *pr. s.* A celebrated Italian anăt'omist, born in 1747, in Lombardy, Italy; died in 1832.

SCARPÆ, *pr. s.* Of Scarpa.

SCHNEIDER (Conrad Victor), *pr. s.* A German professor of medicine at Wittenburg, born at Bitterfield, Saxony, about 1610; died about 1680.

111

SCLERŎT'IC, *adj.* Hard.

SCRĬPTŌ'RIUS, *adj.* Belonging to writing.

SEBĬP'AROUS, *adj.* Producing suet (from *sē'bum*, suet or lard, and *păr'io*, to produce.)

SĔL'LA, *s.* A saddle.

SĔL'LA TUR'CICA, *s.* A Turkish saddle.

SĔM'Ĭ, *Latin adverb.* Half.

112

SEMĬCĬR'CULĀ'RE, *adject.* Half-round, semicir'cular.

SĔMĬLŪ'NAR, *adj.* Half-moon shaped.

SEMĬNĀ'LĒS, *adj.* Belonging to seed.

SĔP'TI, *s.* Of the enclosure or partition.

SĔP'TUM, *s.* An enclosure, a partition.

SERRĀ'TUS, *adject.* Ser'rated (from *serra*, a saw.)

113

SĒ'RUM, *sub.* The fluid which separates from the blood when cold and at rest.

SĒ'ROUS, *adj.* Relating to sē'rum.

SĔS'AMOID, *adj.* Like the sĕs'amum seed.

SEU, *Latin disjunctive conjunction.* Or.

SĬG'MOID, *adj.* Resembling the Greek letter (Σ) s.

114

SĬL'ĬQUA, *s.* A pouch, a pod.

SĬNĬS'TRA, *adj.* That is on the left.

SŌ'CĬA, *s.* A companion.

SŌ'DĬUM, *s.* The metal'lic base of soda.

SOEMMERING (Samuel Thomas), *pr. sub.* A German anăt'omist, born in 1755, at Thorn, Prussia; died in 1820.

115

SŌ'LAR, *adj.* Belonging to the Sun.

SOLĒ'US, *s.* (From *sō'lea*, a sole fish.)

SOLITĀ'RIÆ, *adj.* Sol'itary.

SPERMĂT'ICUS, *adjective.* (From σπέρμα, *spĕr'ma*, seed.)

SPHĒ'NOID, *adj.* Wedge-like.

SPHĔROID', *adj.* Like a sphere, or globe, or ball.

116

SPHĬNC'TER, *sub.* That contracts or shuts.

SPĬEGĔL'IUS or VANDEN SPIEGEL (Adrian), *prop. sub.* A medical writer, born in 1578, at Brussels, Belgium; died in 1625.

SPĬEGĔL'ĬI, *pr. s.* Of Spiegelius.

SPINE, *sub.* The backbone.

117

SPĪNŌ'SUS, *adj.* Resembling a spine or thorn.

SPLĂNCH'NIC,[7] *adj.* Belonging to the entrails.

SPLANCHNŎL'OGY,[7] *sub.* (From σπλάγχνον, *splagchnon*,[7] an entrail, and λόγος, *lŏg'os*, a discourse.)

SPLĒ'NĬUM, *s.* A ferū'la, or splint.

SPLĒ'NĬUS, *sub.* (From σπλήν, *splēn*, the spleen or milt.)

[7] Pronounce ch as k.

118

SPONGIŌ'SA, *adj.* Spongy.

SQUĀ'MOUS, *adj.* Scaly.

STAPĒ'DĬUS, *sub.* (From *stā'pēs*, a stirrup.)

STĔL'LATE, *adj.* Starlike.

STENON (Nicholas), *pr. s.* A Danish anăt'omist, born in 1638, at Copenhagen, Denmark.

STER'NAL, *adj.* Belonging to the sternum.

STER'NUM, *sub.* The breast-bone.

119

STRĪĀ'TUS, *adj.* Scored.

STŸLE, *s.* The ancient pen, a pointed iron used in writing on tables of wax.

STŸ'LOID, *adj.* Resembling a style.

SŬB, *Latin prep.* Beneath.

SUBCLĀ'VIUS, *s.* From *sub*, under, and *clavic'ula*, the collar-bone.

SUBRŪ'FUS, *adj.* Somewhat red.

120

SUBSTAN'TIA, *s.* A substance.

SŬL'CUS, *s.* A groove or furrow.

SUPERCĬL'IARY, *adj.* Belonging to the eyebrows.

SUPERCĬL'IUM, *s.* The eye-brow.

SUPĪNĀ'TION, *s.* The act of turning the palm of the hand upwards.

SŪ'PRA, *Latin prep.* Above.

121

SŪ′RAL, *adj.* Belonging to the calf of the leg.

SUSTENTĂC′ULUM, *s.* A support, a prop.

SUTŪ′RA, *s.* The union of bones by means of dentiform margins.

SŸL′VIUS (Jacobus), or JAMES DUBOIS, *pr. s.* A celebrated physician and anăt′omist, born in 1478, at Amiens, France; died in 1555.

122

SŸM′PHŸSIS, *s.* Mediate connexion, growing together; it comprehends four species: *sÿnchondrō′sis*, *sÿsarcō′sis*, *sÿneurō′sis*, and *sÿndesmō′sis*.

SŸNARTHRŌ′SIS, *s.* (From *σὺναρθροω*, *sunar′thrŏō*, I articulate.)

SŸNDESMŎL′OGY, *s.* (From *σύνδεσμος*, *sundĕs′mos*, a ligament, and *λογος*, *lŏg′ŏs*, a discourse.)

123

SŸNŌ′VIA, *s.* An unctious fluid secreted from certain glands in the joint in which it is contained.

TĒ′NIA, *s.* A ribbon or fillet.

TĀ′LUS, *s.* The ankle.

TARIN (Peter), *pr. s.* A French physician, born at Courtenai, France; died in 1761.

124

TARĪ′NĪ, *pr. s.* Of Tarin.

TAR′SAL, *adj.* Belonging to the instep.

TEM′PORAL, *adj.* Belonging to the temple.

TENDĬN′EÆ, *adj.* Ten′dinous, sĭn′ewy.

TENSOR, *s.* (From *tendo*, I stretch.)

TENTŌ′RIUM, *s.* A tent.

TĒ′RES, *adj.* Round, cylindrical.

125

TĔR'ETES, *adj.* Round, the plural of tē'res.

TER'TIO, *adj.* The third.

TES'TIS, *s.* A witness, a testicle.

THĂL'AMUS, *s.* A bed.

THEBE'SĬĬ, *s.* Of Thebesius.

THŌ'RAX, *s.* The chest.

THŌRĂ'CIC, *adj.* Belonging to the thō'rax.

THY'MIC, *adj.* Relating to the thymus gland.

126

THY'MUS,[8] *s.* and *adj.* (From θύμος, *thu'mŏs.*)

THY'ROID,[9] *adj.* Resembling a shield.

TĪB'IA, *s.* The largest bone of the leg; a flute or flageolet.

TĪS'SUE, *s.* A texture.

TOR'CULAR, *s.* A press for wine, oil, or cider.

[8] Pronounce thighmus.

[9] Pronounce thighroid.

127

TRĀ'CHEA,[1] *s.* (From τραχυς, *tra'chus,*[1] rough.)

TRĂ'GĬCUS, *s.* (From τραγος, *tra'gŏs,* a goat.)

TRĀ'GUS, *s.* A goat. (From τραγος, *tra'gŏs.*)

TRĂNS'VERSE, *s.* The longer axis of an ellipse.

TRĂPĒ'ZĬUM, *s.* A bone of the wrist; a geomĕt'rical figure.

[1] Pronounce ch as k.

128

TRĂPĔZOID', *s.* A bone of the wrist; a geomĕt'rical figure.

TRĒ'MA, *s.* A perforation, an orifice, a cavity.

TRĪAN'GULAR, *adj.* Having three angles.

TRĪ'CEPS, *adj.* Three-headed.

TRĪCŬS'PID, *adj.* Three-pointed.

129

TRIFĀ'CIAL, *s.* (From *trēs*, three, and facial, belonging to the face.)

TRĪGĔM'INI, *adj.* (From *trēs*, three, and *gĕm'ĭnus*, double.)

TRĬGŌN'UM, *s.* A triangle.

TRĬQUĒ'TRUS, *adj.* Three-cornered.

TROCHĂN'TER,[2] *s.* (From τροχαο, *trŏch'aŏ*, I run.)

[2] Pronounce trokanter.

130

TRŎCHLEĀ'TOR,[3] *s.* (From *trŏch'lea*,[3] a pulley.)

TŪ'BER, *s.* An excrescence.

TUBER'CULUM, *s.* A little tubercle.

TŪ'BULĪ, *s.* Little tubes (from *tū'bus*, a pipe.)

TŪ'BULUS, *s.* A small tube.

TŪ'NIC, *s.* A membrane or covering.

[3] Pronounce ch as k.

131

TUR'BINATED, *adjective.* Shaped like a top.

TUTĀ'MĬNA, *s.* The safeguards.

TŸMPĂN'IC, *adj.* Belonging to the drum or barrel of the ear.

TŸM'PANUM, *s.* The drum or barrel of the ear.

132

TYSON (Edward), *pr. s.* An English physician and comparative anăt'omist, born in 1649, at Bristol, England; died in 1708.

TŸSŌ'NĪ, *pr. s.* Of Tyson.

UL'NĂ, *s.* The larger bone of the fore-arm.

UMBĬL'ICUS, *s.* The navel.

UN'CĬFORM, *adj.* Hook-like.

133

Ū'RACHUS,[4] *s.* οὖραχος, *ŭ'rachŏs.* [4] (From οὖρον, *ŭ'rŏn*, ū'rĭne, and χέω, *chĕ'ō*, to pour.)

Ū'RETER, *s.* (From οὖρον, *ŭ'rŏn*, ū'rĭne.)

URĬNĬF'ERĪ, *adj.* Bearing or containing urine.

Ū'TERĪNE, *adj.* Appertaining to the womb.[5])

[4] Pronounce ch as k.
[5] Pronounce woom.

134

Ū'VULA, *s.* A little grape.

VAGĪ'NAL, *adj.* Belonging to the vagī'na; resembling a sheath.

VĀ'GUS, *adj.* Wandering.

VALSALVA (Antonio Maria), *pr. s.* An Italian anăt'omist, born in 1661, at Imola, Italy; died in 1723.

VĂL'VULA, *s.* A little valve.

135

VARŌ'LIUS (Constant), *pr. s.* An Italian anăt'omist, born at Bolō'gna, Italy, in 1542; died in 1575.

VARŌ'LĪĪ, *pr. s.* Of Varolius.

VĂS, *s.* A vessel; applied to arteries, veins, ducts.

VĂS'TUS, *adj.* Vast.

VĒ'LĪ, *s.* Of the veil.

VĒ'LUM, *s.* The veil.

136

VĔ'NOUS, *adj.* Appertaining to veins.

VENTRĬC'ULUM, *s.* The ventricle (from *venter*, the belly.)

VERMĬ'FORM, *adj.* Worm-like.

VER'TEBRÆ, *s.* (From *ver'to*, I turn.) The name of the bones which compose the spine.

VER'TEBRA, *s.* The singular of ver'tebræ.

137

VĒSĪ'CA, *s.* A bladder.

VĒSĪ'CA FĔL'LIS, *s.* The gall-bladder.

VĒSĪ'CA NATATŪ'RIA, *s.* The air bladder of fishes.

VESTĬB'ULAR, *adj.* Relating to the vestĭb'ulum.

VĔS'TIBULE, *s.* The first entrance of a house.

VESTĬB'ULUM, *s.* A cavity of the internal ear.

138

VĪ'DUS VIDĬUS, *prop. s.* Latinized name of GUIDO GUIDI, an Italian physician of the 16th century, born at Florence, Italy; died in 1569.

VIEUSSENS (Raymond), *pr. s.* A French anăt'omist, born in 1641, in the department of the Av'eyron, France; died in 1720.

139

VĪ'TÆ, *s.* Of life.

VĬT'REOUS, *adj.* Glassy.

VOCĀ'LĒS, *adj.* Vocal.

VO'LA, *s.* The hollow of the hand.

VŪ'MER, *s.* A ploughshare; a bone of the nose.

VORTICŌ'SÆ, or verticō'sæ, *adj.* That whirls or turns round (from *verto*, to turn.)

140

WHARTON (Thomas), *pr. s.* A physician, born in Yorkshire, England; died in 1673.

WILLIS (Thomas), *pr. s.* An illustrious English physician, born in 1621, at Great Bedwin, Wiltshire, England; died in 1675.

WĬLLĬS'ĪĪ, *pr. s.* Of Willis.

141

WINSLOW (Jacob Benignus), *pr. s.* An anăt'omist, born in 1669, at Odinsey, Denmark; died in 1760.

WINSLOW'II, *pr. s.* Of Winslow.

WORMIUS (Olaus), *pr. s.* A learned Danish physician, born in 1588, at Arhusen, a city of Jutland, Denmark; died in 1654.

142

WRISBERG (Henry Augustus) *pr. s.* Anăt'omist, born in 1739, at St. Andreasberg, Germany; died in 1808.

XĬPH'OID,[6] *adj.* Sword-like.

ZINN (John Gottfried), *pr. s.* Professor of anatomy at the University of Göttingen, born in 1727, at Schwabach, Bavaria; died in 1759.

[6] Pronounce zĭf'oid.

SUPPLEMENT.

143

BERZELIUS (John Jacob), *pr. s.* A celebrated Swedish chemist, born in 1779, at Vaefersunda, a village in Ostgothia, Sweden; died in 1848.

COOPER (Sir Astley Paston), *pr. s.* A distinguished surgeon, born in 1768, at Brooke, Norfolk, England; died in 1841.

144

COTUNNIUS *or* COTUGNO (Domenico), *pr. s.* A celebrated doctor and anăt'omist, born in 1736, at Ruvo (Naples), Italy; died in 1822.

GLASER (John Henry), *pr. s.* Born at Basil, Switzerland, in 1629; died in 1675. He was professor of anatomy at the University of Basil.

145

INGRASSIAS (John Philip), *pr. s.* Born at Palermo, Sicily, in 1510; died in 1580. He studied at Padua, and became Doctor of Medicine in 1537.

PACCHIONI (Antonio), *pr. sub.* Anăt'omist, born at Reggio, Italy, in 1664; died in 1726. He was a pupil of Malpighi.

146

RIDLEY (Humphrey), *pr. s.* A physician and anăt'omist, graduated at the University of Leyden, in Holland; published the "Anatomy of the Brain" in 1695.

ROLANDO (Lewis), *pr. s.* A celebrated Italian anăt'omist, born at Turin, Sardinia, in 1773; died in 1831.

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Page	4,	card	13,	*for* cŏc′cўs,	*read* cŏc′cўx.
„	13,	„	52,	„ meā′tus and auditō′rius,	„ meā′tus auditō′rius.
„	17,	„	66,	„ serrā′ted,	„ sĕr′rated.
„	27,	„	5,	„ săc′ro-ĭl′ĭac,	„ săc′ro-ĭl′ĭac.
„	75,	„	33,	„ Thesbē′sĭī,	„ Thebē′sĭī.
„	75,	„	35,	„ there are valves,	„ there are no valves.
„	93,	„	52,	„ nervum clū′nium,	„ nervus clū′nium.
„	134,	„	31,	„ Cor′na	„ Cor′nu.
„	152,	„	103,	„ Ramŭs′culēs,	„ Ramus′culī.

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